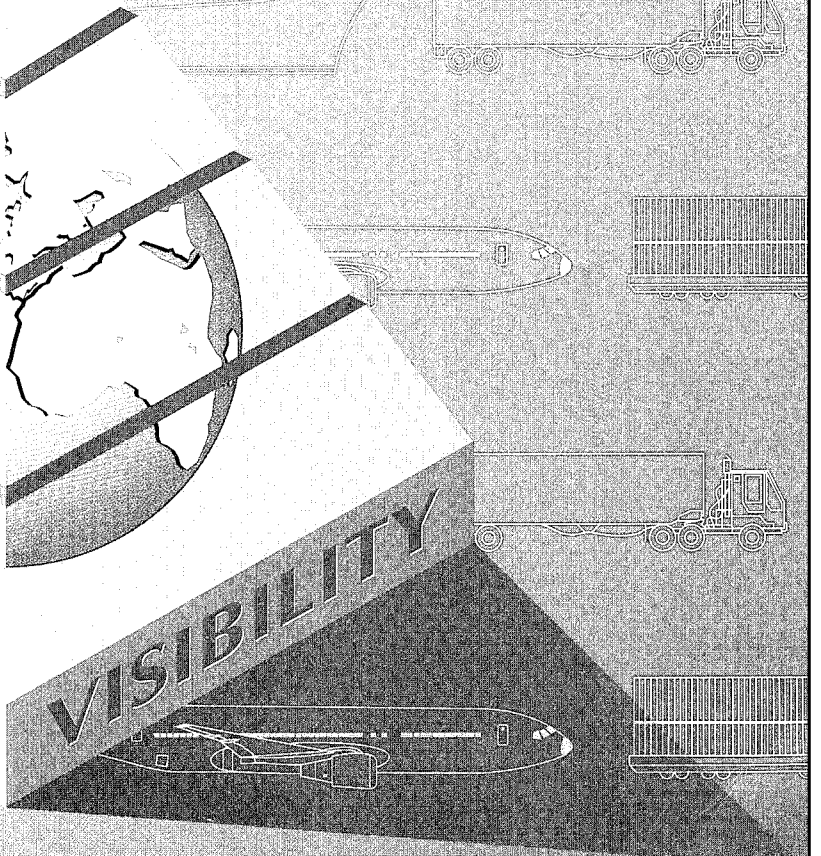
Defense Intransit Visibility Integration Plan



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13. ABSTRACT ***(Maximum 200 words)***

The Office of the Secretary of Defense (OSD) appointed the U.S. Transportation Command (USTRANSCOM) as the lead office for analyzing functional requirements and to develop an intransit tracking capability. As a result, USTRANSCOM, in conjunction with the Office of the Assistant Deputy Undersecretary of Defense for Transportation Policy (ADUSD-TP), prepared the *Defense Intransit Visibility Integration Plan*.

Intransit visibility (ITV) is the ability to track the identity, status, and location of Department of Defense (DoD) unit and non-unit cargo (excluding bulk petroleum, oils, and lubricants) and passengers; medical patients; and personal property from origin to consignee or destination during peace, contingencies, and war. This plan provides the functional design for an integrated ITV capability. It presents the high-level requirements of that system, ongoing initiatives that have ITV potential, detailed operating concepts for capturing ITV data, procedural and technical issues and key considerations, and implementation schedules. This plan provides the DoD with a singular course of action for developing an integrated capability.

At a minimum, the ITV system will identify the contents of a shipment and monitor its location as it moves from origin to destination. At the heart of the operating system is the ITV module of the Global Transportation Network (GTN). It will be DoD's comprehensive data base of intransit information, including all military, government, and vendor documented shipments. It will also capture shipment status, booking information, passenger reservations and manifests, personal property, medical patients, and vessel and aircraft scheduling data.

This plan was developed in coordination with the OSD appointed joint task force for Total Asset Visibility.

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Defense Intransit Visibility Integration Plan

February 1995

OFFICE OF THE UNDER SECRETARY OF DEFENSE

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ACQUISITION AND
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8 MAR 1995

(L/TP)

MEMORANDUM FOR ASSISTANT SECRETARY OF THE ARMY (INSTALLATIONS, LOGISTICS, AND ENVIRONMENT)
ASSISTANT SECRETARY OF THE NAVY (RESEARCH, DEVELOPMENT, AND ACQUISITION)
ASSISTANT SECRETARY OF THE AIR FORCE (ACQUISITION)
DIRECTOR, DEFENSE LOGISTICS AGENCY
DIRECTOR FOR LOGISTICS (J-4), JOINT STAFF
DEPUTY COMMANDER-IN-CHIEF, U.S. TRANSPORTATION COMMAND

SUBJECT: Department of Defense (DoD) InTransit Visibility (DITV) Integration Plan

I am pleased to forward the attached DITV Integration Plan for your information and action. The U.S. Transportation Command (USTRANSCOM) developed the plan at the direction of my office and in coordination with the DoD Components. This plan represents a joint, high-level statement of requirements and functional design for achieving an ITV capability for the Department and is consistent with the Total Asset Visibility (TAV) Plan currently being developed by the TAV Joint Task Force. The DITV Integration Plan provides an early opportunity to begin implementing tasks necessary for achieving the ITV segment of TAV.

It is important that all DoD Components work in concert and allocate the necessary resources to help resolve the asset visibility problems that have plagued us in the past. The DITV Integration Plan provides the framework to support us in that endeavor. Along with a statement of requirements and functional design, the DITV Integration Plan details ITV operating concepts for each segment of the transportation pipeline; summarizes ongoing ITV-related initiatives and systems development efforts; identifies major activities critical to achieving a comprehensive ITV capability; and proposes implementation priorities and responsible organizations for achieving a worldwide ITV capability.

I fully support the DITV Integration Plan's recommendations and solicit your help in completing those actions under your purview. As the lead agency for ITV, USTRANSCOM will coordinate

DoD efforts in implementing the actions identified in the DITV Integration Plan. Your full cooperation in assisting USTRANSCOM in this critical undertaking is greatly appreciated.

James R. Klugh
Deputy Under Secretary
of Defense (Logistics)

Attachment

FOREWORD

The United States Transportation Command, as the designated Department of Defense (DOD) focal point for In-Transit Visibility (ITV), declared 1994 as "The Year of ITV." As an outgrowth of this declaration, USTRANSCOM embarked on an aggressive program of study and development. The resulting ITV integration plan is aimed at focusing energy, attention, and resources toward obtaining an ITV capability for DOD.

Comprehensive ITV is an essential element of the DOD's warfighting capability and the supporting logistics operational processes. The two principal elements of this capability are: (1) automation at shipment sources to generate accurate data and send it to other operational nodes to support follow-on processes and (2) a central transportation data repository to support transportation management processes, current and future operations planning processes, reports and data sharing, and customer inquiries.

This plan identifies high-level requirements for ITV and the functional design for an integrated ITV capability. It is intended to be a living document that will be supplemented with more detailed action plans as needed to remove impediments to timely and effective information exchange between transportation, operations, and command and control nodes.

This plan has been coordinated with the Office of the Secretary of Defense, the Joint Staff, the military Services, the unified commands, and the defense agencies. The plan is consistent with DOD's Total Asset Visibility objectives of improving logistics support to customers through process improvement and application of state-of-the-art technologies. USTRANSCOM is the primary agency to coordinate DOD-wide efforts to implement this plan and ensure DOD gains a comprehensive ITV capability. However, the continuing involvement of all DOD components is required to identify system and procedural impediments to effective operations and ITV.

Comments and suggestions should be forwarded to: USTRANSCOM/TCJ4-LT, 508 Scott Dr, Scott AFB IL 62225-5357.

ROBERT L. RUTHERFORD
General, USAF
Commander in Chief
United States Transportation Command

Executive Summary

BACKGROUND

In every major deployment during the 20th century, the Department of Defense (DoD) has been plagued by a lack of visibility over shipments and units entering a theater of operations. During Desert Shield/Storm, more than 20,000 containers of military materiel (out of a total of 40,000) entering the theater had to be opened, inventoried, resealed, and then reinserted into the transportation system simply because military personnel in the theater did not know their contents. The movement of troops was also hampered by the lack of visibility over personnel moving into, within, and out of, the area of operations. In addition, 60 percent of evacuated patients ended up at the wrong destination. The DoD lacked timely movement status information needed to divert and reconstitute deploying unit and non-unit shipments. Fortunately, it had time to ensure that all deployed units received their necessary combat materiel before fighting began, a luxury that may not exist in future deployments. These shortcomings in logistics operations will continue to exist until the DoD implements a comprehensive intransit visibility (ITV) capability.

This plan provides the functional design for an integrated ITV capability. It presents the high-level requirements of that system, ongoing initiatives that have ITV potential, detailed operating concept for capturing ITV data, procedural and technical issues and key considerations, and an implementation schedule. This plan is not intended to provide the technical architecture, user interface requirements, detailed data requirements, or economic analysis for the fully integrated system. The U.S. Transportation Command (USTRANSCOM) will use the plan to oversee the progress of Defense transportation initiatives, including functional process improvements, system enhancements and interfaces, and data quality. The Global Transportation Network (GTN) Program Management Office will also use it to prioritize and schedule its development efforts. The Office of the Secretary of Defense (OSD) will rely on the plan to establish policies and procedures and to identify and support funding and resource requirements. Finally, this plan provides the Military Services, Defense agencies, USTRANSCOM and its transportation component commands, and the Joint Staff, with a singular course of action for developing an integrated ITV capability.

Intransit visibility is the ability to track the identity, status, and location of DoD unit and non-unit cargo (excluding bulk petroleum, oils, and lubricants)

and passengers; medical patients; and personal property from origin to consignee or destination during peace, contingencies, and war. However, it constitutes only a portion of the requirements for Total Asset Visibility (TAV), which also includes the tracking of inprocess assets (being procured or repaired) and instorage assets (inventory at Defense storage locations).

The DoD has long been aware of the value of ITV. A few years ago, OSD assigned USTRANSCOM responsibility for developing a DoD-wide ITV capability. As the DoD ITV functional proponent, USTRANSCOM's ITV responsibility begins at origin and ends with receipt at the consignee or destination designated by the Commanders in Chief (CINCs), Military Services, or Defense agencies. As an initial response to that tasking, USTRANSCOM developed a GTN prototype to provide ITV over air and surface shipments moving between ports of embarkation and debarkation (POEs and PODs). USTRANSCOM is now in the process of expanding the ITV module of GTN to encompass movements from CONUS origins, through the ports, and forward to theater destinations. The GTN is also the means of updating the Worldwide Military Command and Control System (WWMCCS) and Joint Operations Planning and Execution System (JOPES) with selected transportation movement information. Ultimately, GTN will become the integrated transportation module of Global Command and Control System (GCCS), the system that will replace WWMCCS and JOPES. Eventually, USTRANSCOM will coordinate with other Defense activities to integrate GTN with other logistics systems as part of a TAV systems architecture.

TAV Integration

In order to identify the required TAV systems architecture and develop a plan for its implementation, OSD has established a Joint Task Force (JTF). The ITV requirements, operating concepts, and implementation schedules in this integration plan are consistent with the efforts of the JTF to develop broader operating concepts for a greater TAV operating environment. In areas where TAV and ITV overlap, such as direct vendor delivery shipments, development of a theater material management system, and implementation of automatic identification technology, efforts have been taken to ensure that the proposed ITV operating concept is consistent and complimentary with TAV. The key to integrating TAV and ITV is the development of a single interface for all DoD TAV users. Such an interface will most likely be accommodated between GTN and Defense Automatic Addressing System (DAAS)/Logistics Information Processing System. When fully implemented, GTN will become the intransit portion of DoD's greater TAV system.

Requirements

At the highest level, DoD's requirements for ITV are well known. At a minimum, the ITV system should identify the contents of a shipment and monitor its location as it moves from origin to destination. It should also enable DoD

Components to track individual requisitions, items, and unit movements; reconstitute shipments; and divert shipments to new destinations. To satisfy those requirements, a link needs to be established among DoD's maintenance, material management, and command and control systems. The system must also have the capability to operate from source to destination (including redeployments and retrograde shipments); be available during peace, contingencies, and war; and support both the operations and logistics communities. Finally, it must meet these requirements for all Defense materiel, passenger, and patient movements. This list is hardly inclusive – there are many other detailed data, system interface, and procedural requirements – that are presented as part of the ITV operating concept.

Functional Concepts and Related Actions

The plan divides ITV into two major components – cargo and personnel. It further divides cargo into unit, non-unit, personal property, and redeployment and retrograde subcomponents; and personnel into unit, non-unit, medical patients, and redeployment subcomponents. A brief description of the operating concept and implementation schedule for each ITV subcomponent follows. All schedules are contingent upon the award of the GTN contract planned for early 1995.

At the heart of DoD's ITV operating concept is the ITV module of GTN. It will be DoD's comprehensive data base of intransit shipment information, including all military, government, and vendor documented shipments. It will also capture shipment status, booking information, passenger reservations and manifests, personal property, medical patients, and vessel and aircraft scheduling data. This integration plan identifies the operating concepts and implementation schedules for gathering that information. It does not identify the system interface requirements and operating concepts for accommodating ITV and TAV user inquiries. The user interface requirements for command and control will be identified when GCCS is developed. As the JTF finalizes DoD's TAV requirements, the optimal technical configurations and operating concepts for facilitating all other user inquiry requirements will be identified.

Cargo – Unit Movements

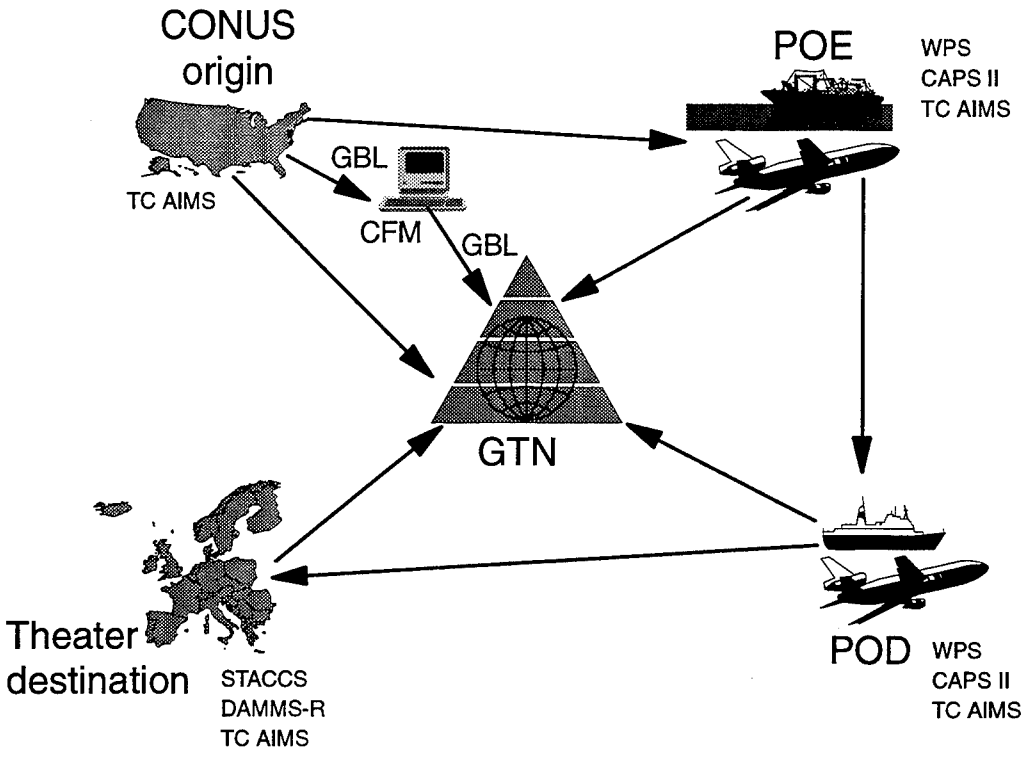
Unit cargo includes all unit equipment, accompanying supplies, Marine Corps Maritime Prepositioned Forces; Army unit equipment aboard prepositioned afloat ships; and Prepositioning of Materiel Configured to Unit Sets (POMCUS) stocks. In order to provide the status and location of all unit movements from origin to destination, GTN should be able to track commercial and organic shipments of unit cargo by the shipment identification number; transportation control number (TCN); unit line number (ULN); and unit identification code (UIC). (The ULN and UIC are embedded in the TCN.) For government and commercial bills of lading, GBLs and CBLs respectively, the TCN is provided in

the shipment description. Widespread use of these codes and numbers would enable users to maintain ITV of unit equipment on a line-item basis.

The ITV operating concept for unit movements calls for GTN to receive unit movement data from source systems, POE and POD systems, and a joint theater transportation system (see Figure 1). The source systems include the Military Services' Transportation Coordinator's Automated Information for Movement Systems (TC AIMSs). The port systems include the Terminal Management System (TERMS), which will soon be replaced by the Worldwide Port System (WPS), for surface movements, and the Consolidated Aerial Port System II (CAPS II) for air movements. The theater transportation system has not yet been developed, but could build upon the partial capability already available through TC AIMS; the Standard Theater Army Command and Control System (STACCS), which tracks Army unit movements; and the Department of the Army Movement Management System — Redesign (DAMMS-R), which forecasts and tracks inter-theater cargo and containers.

When a unit movement occurs, TC AIMS would transmit shipment information to GTN and the appropriate POE system. If the unit cargo movement is documented using a GBL, the data would be transmitted from TC AIMS to the CONUS Freight Management (CFM) system, which would then update GTN. When the unit movement reaches the POE, the port system would provide GTN with port arrival and departure data. The POD would send similar updates to GTN and the theater transportation system. Finally, GTN would receive destination arrival data from the theater system. Until the theater system is developed, however, GTN should consider interfacing with STACCS for Army unit movements.

While the DoD has made much progress in implementing portions of this concept, it needs to resolve two key issues before ITV is possible. First, the DoD needs to develop a theater transportation system that would provide GTN with ITV information from any theater. Second, it needs to develop interfaces between GTN and TC AIMS, CFM, the air and surface port systems, STACCS, and joint theater system. Full implementation of this ITV subcomponent is contingent upon the development of a theater system, which is scheduled for December 1997, and the subsequent system interfaces with that system by June 1999. However, DoD could achieve some interim ITV through system interfaces between GTN and TC AIMS, and GTN and STACCS, by June 1996 and September 1997, respectively.



Note: All arrows signify MILSTAMP data transactions unless otherwise annotated.

Figure 1.
Unit Cargo

Cargo — Non-Unit Movements

Non-unit cargo includes all sustainment materiel (except the supplies and equipment accompanying a unit during deployment) in CONUS, pre-positioned overseas, or afloat. GTN should be capable of tracking all non-unit cargo shipments, from origin to its CONUS or theater destination, by shipment identification number, TCN, national stock number (NSN), and requisition number. Non-unit cargo is documented using transportation control and movement documents (TCMDs), GBLs, and CBLs. That documentation also includes a variety of non-standard mail and vendor shipment information and commercial carrier-status information.

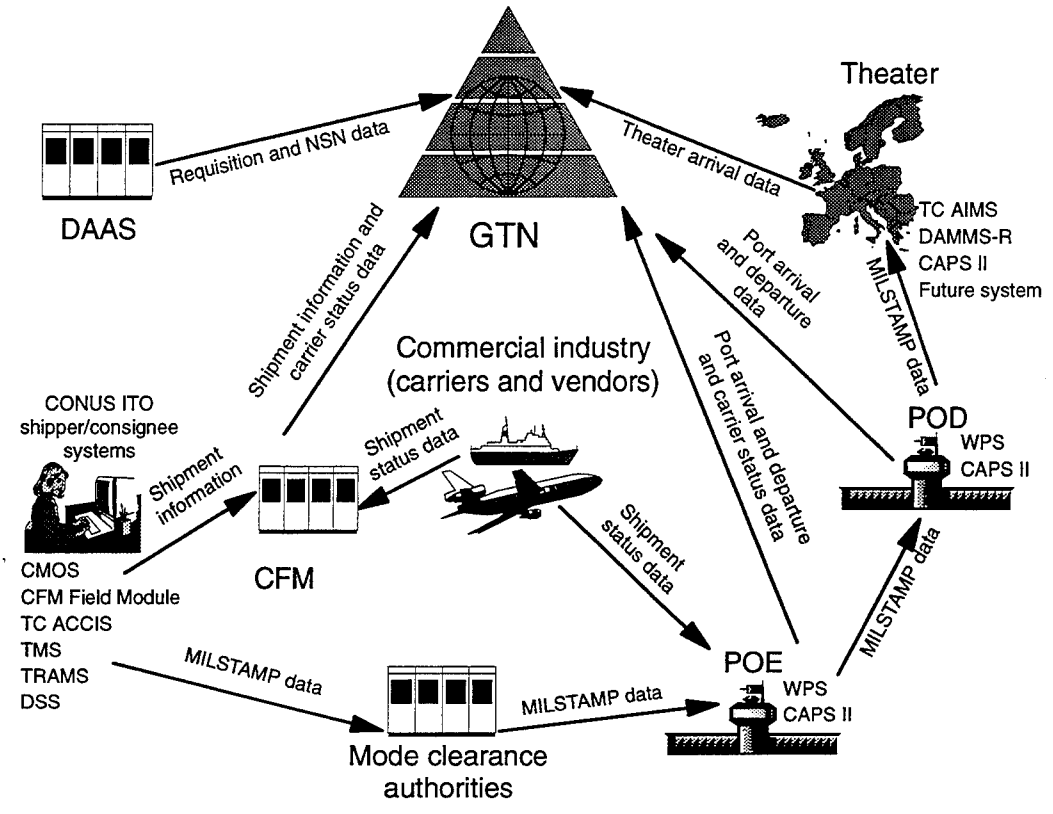
Lessons learned during Desert Shield/Storm show that the greatest benefits from implementing ITV are in the non-unit cargo area. However, non-unit cargo also poses some of the greatest implementation challenges. For example, more than 1,000 CONUS installation transportation offices, supported by at least 11 application systems, initiate millions of non-unit cargo shipments every year using all modes of transportation. In addition, about one-third of all non-unit shipments originate with commercial vendors. Finally, all shipments, whether from a DoD or commercial source, are documented using a variety of standard and non-standard formats.

Fortunately, the DoD has long recognized these complexities and is implementing a number of new programs to improve current business operations. The GTN Version 2 prototype currently captures non-unit cargo data from CAPS II and TERMS. In January 1994, the Military Traffic Management Command (MTMC) implemented electronic data interchange (EDI) techniques for receiving GBL data in the CFM system from a few Defense shippers. MTMC plans to interface CFM with GTN, along with expanding its GBL program to include more than 600 Defense transportation offices, by March 1997.

However, these new systems constitute only a part of a comprehensive non-unit cargo ITV operating concept. That concept calls for GTN to receive transportation information from source systems (through CFM), POE and POD systems, and the theater transportation system; and requisition and NSN data from DAAS (see Figure 2). The source systems include the Military Service legacy depot systems; Defense Logistics Agency's (DLA's) new Distribution Standard System (DSS), and Transportation Automated Management System (TRAMS); systems supporting the Military Services' installation transportation offices; and all commercial vendor systems. The port systems include WPS for surface movements and CAPS II for air movements. The theater system remains to be developed. Until that system is developed, GTN should interface with TC AIMS or the DAMMS-R systems in order to provide interim capability by June 1996 and March 1997, respectively.

When a non-unit shipment occurs, the CONUS source system would transmit shipment information to the appropriate aerial or surface port, consolidation/containerization point, or consignee. If the shipment is documented using a GBL or CBL, the data would be transmitted to the CFM system, which then updates GTN. The Defense Transportation Tracking System (DTTS) would forward location data on shipments tracked via satellite to GTN. The POE systems would provide GTN with three ITV messages for every shipment: expected shipment arrival information (enhanced MILSTAMP data); port arrival information; and port departure information. The POD systems would then provide port arrival and departure information to both GTN and the theater transportation system. Finally, GTN would receive destination arrival data from the theater system.

However, before DoD can implement this operating concept, it needs to resolve four issues. First, it needs to ensure the availability, quality, and timeliness of MILSTAMP, GBL, CBL, vendor, mail, and shipment status data from commercial carriers. Second, it needs to develop a theater transportation system capable of providing GTN with ITV data from any theater. Third, it needs to expand DTTS to use satellite tracking for other modes of transportation and commodities, and for OCONUS shipments. Finally, it needs to develop GTN interfaces with CFM, DTTS, air and surface port systems, DAMMS-R, and the theater system. In addition, the Joint Transportation CIM (Corporate Information Management) Center (JTCC) has developed a transportation migration strategy to reduce the number of Defense systems that provide source data.



Note: CMOS = Cargo Movement Operations System; TC ACCIS = Transportation Coordinator's Automated Command and Control Information System; DSS = Distribution Standard System; ITO = Installation Traffic Office.

Figure 2.
Non-Unit Cargo Operating Concept

The schedule for implementing this ITV operating concept for non-unit cargo movements is dependent upon the development of a theater transportation system, which is scheduled to occur by December 1997 and the subsequent interfaces of various transportation systems with that system by June 1999. However, DoD could achieve an interim capability through system interfaces between GTN and the CFM system and DAMMS-R by March 1997.

Cargo – Personal Property

Personal property cargo includes household goods, unaccompanied baggage, privately owned vehicles, and mobile homes belonging to military members and civilian employees of the DoD and U.S. Coast Guard. While the personal nature of this cargo mandates close attention to service quality, an ITV capability would add little to the DoD's ability to deploy and sustain its forces during war or contingencies. Although the personal property community's views vary, the existing visibility appears sufficient under most circumstances. Therefore, funding and development efforts for ITV are better directed at higher

priority commodities, particularly those that contribute directly to force deployment and sustainment.

Nonetheless, the DoD can still increase its visibility over selected personal property shipments relatively easily and inexpensively by requiring carriers to provide shipment status messages using EDI techniques. Those status messages should be provided at the request of a personal property shipping office when a shipment's ocean transit begins and ends, and when the shipment has not been delivered by the required delivery date. The DoD could implement this capability by June 1996.

Cargo – Redeployment and Retrograde

A theater commander's responsibility for the movement of cargo entering the theater does not end when the cargo arrives at its destination. Many items, including both unit and non-unit supplies and equipment, are subsequently reshipped from the theater to CONUS or to another theater. Theater commanders retain responsibility for the movement of all cargo from a theater point of origin through arrival at a theater POE. The DoD refers to materiel leaving a theater location bound for another theater as redeployment cargo and materiel bound for CONUS as retrograde cargo.

While the DoD has a substantial investment in a CONUS infrastructure for deploying unit and non-unit cargo, it lacks a similar infrastructure for redeployment and retrograde cargo. Again, the lessons learned from Desert Shield/Storm clearly indicate the need for effective redeployment systems in overseas theaters. Numerous problems arose in the documentation and subsequent redeployment of unit and non-unit cargo from Europe to Saudi Arabia because of the absence of systems in Europe to generate documentation and to track cargo movements. Current doctrine requires flexibility and rapid response to and from any potential theater, which calls for the development of a single theater system that satisfies Joint Staff, Military Service, and Defense agency requirements, and provides capabilities similar to CONUS deployment systems.

The operating concept for retrograde and redeployment cargo is shown in Figure 3. The proposed theater transportation system would produce standard shipment information documentation, including TCNs for unit and non-unit cargo. It would have the capability to exchange shipment information with GTN, the theater POE system, and in-theater organic and foreign commercial carriers. Upon arrival of the redeploying or retrograde cargo at the POE, the port system would update the movement information and pass it to GTN. Despite the logical simplicity of this concept, the essential theater transportation system needs to be developed. Key milestones include development of the theater system by December 1997; the completion of subsequent interfaces by June 1999; and interim GTN interfaces with TC AIMS by June 1996, and DAMMS-R by March 1997, STACCS by September 1997 for unit redeployments.

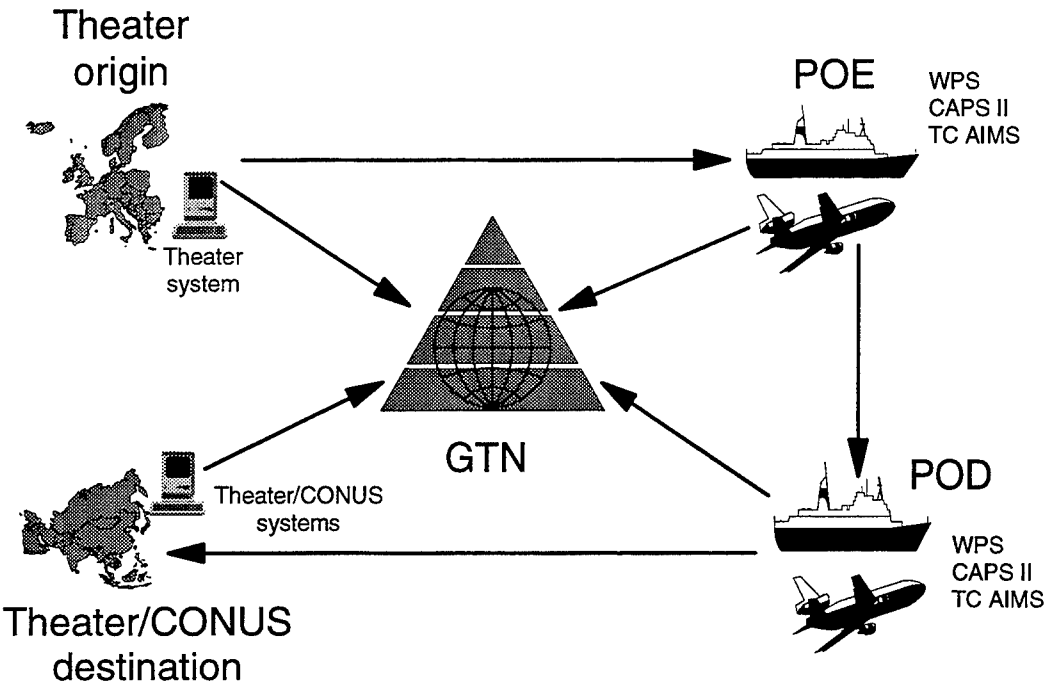
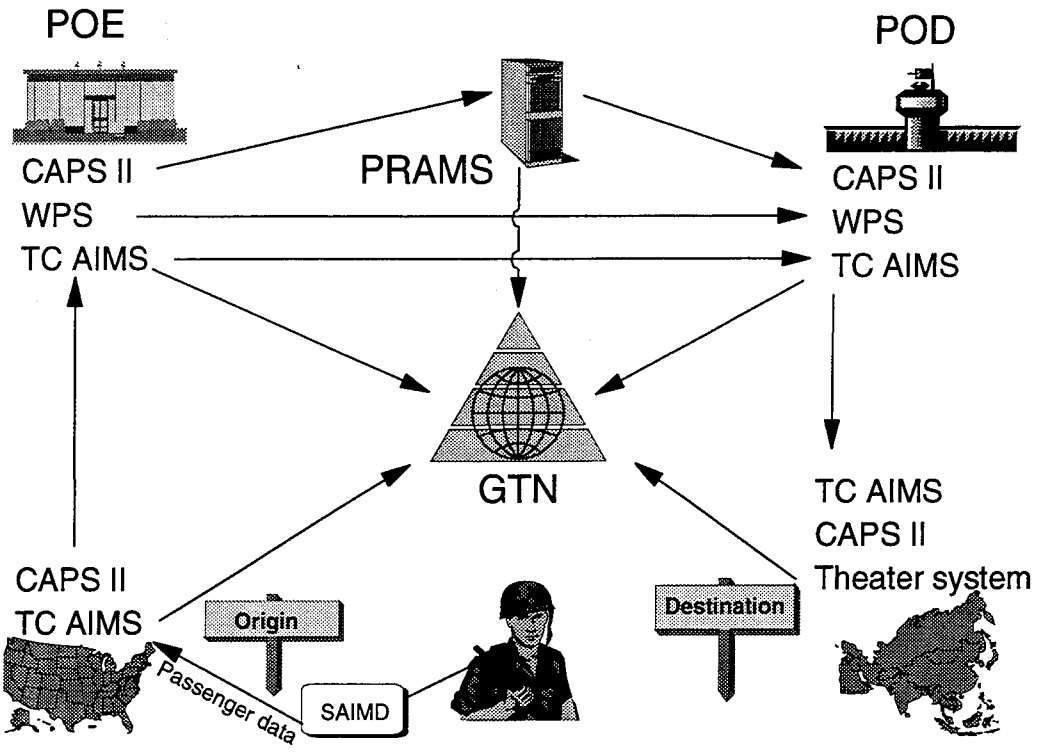


Figure 3.
Redeployment and Retrograde Cargo

Personnel — Unit Movements

Unit personnel include all civilian and military passengers directly attached to a deploying unit. Modern commercial communications and live media coverage of troop movements have placed additional demands upon the DoD to maintain visibility of personnel moving from origin to a theater destination via air or surface transport. As a consequence, item-level detail, such as the passenger's name, social security number, service specialty code, ULN, ultimate destination, and intransit location, must be readily accessible.

To ensure the availability of this information, the ITV operating concept for unit personnel includes the electronic transmission of standard passenger manifests from CAPS II and the Military Services' TC AIMSs (see Figure 4). Those systems, which are located at bases and ports throughout the world, would transmit data to GTN through a communications gateway. For personnel movements manifested using TC AIMS, the origin would provide the port system (WPS for surface movements and CAPS II for air movements) with advance manifest information. Those systems, in turn, would update GTN with vessel or aircraft departure information from the POE. At the POD, either WPS or CAPS II would update GTN and the TC AIMS theater module with vessel or aircraft arrival information. Finally, TC AIMS would update GTN when the unit reaches its deployment location.



Note: All unlabeled arrows indicate manifest data flow. PRAMS = Passenger Reservation and Manifesting System; SAIMD = standard automated input media device.

Figure 4.
Unit Personnel — Operating Concept

The DoD has some ITV of unit personnel movements. Interfaces between GTN and CAPS II, and the Air Mobility Command's Passenger Reservation and Manifesting System (PRAMS) and Global Decision Support System (GDSS) already exist. Those interfaces enable GTN to track deploying unit personnel from POE to POD. In order to expand this capability to track unit personnel from origin to final destination, DoD needs to accomplish two major activities. First, it needs to develop a standard data element passenger manifesting format and a standard automated input media device (SAIMD), such as the Soldier Readiness Card. Second, it needs to develop system interfaces between the Military Services' TC AIMS (unless they migrate to a single system), and among TC AIMS, WPS, and CAPS II. The planned implementation for these capabilities depend upon the development of a theater transportation system, which is scheduled to occur by December 1997, and the subsequent interfaces of various transportation and personnel systems with that system (June 1999). However, DoD should achieve additional interim capability through a GTN and TC AIMS interface by June 1996.

Personnel — Non-Unit Movements

A large number of temporary duty and permanent change-of-station personnel, medical attendants, and filler and replacement personnel move daily

through military and commercial transportation systems. The DoD needs the capability to track the identity, location, and movement schedules of those personnel to ensure that field units and naval combatants are rapidly brought up to strength during crisis operations and war. (A Navy ship's early sailing, for example, could require diverting inbound crew members to the ship's next port of call.) The tracking of these types of personnel presents a unique challenge to the transportation community because many travel individually on commercial carriers.

The ITV operating concept for non-unit personnel calls for PRAMS to update GTN on the status and location of all DoD passengers (see Figure 5). That update already occurs every two hours. In addition, Air Mobility Command (AMC) is building an interface between PRAMS and commercial airline reservation systems that will ultimately provide GTN with information about selected categories of DoD personnel traveling on commercial airlines.

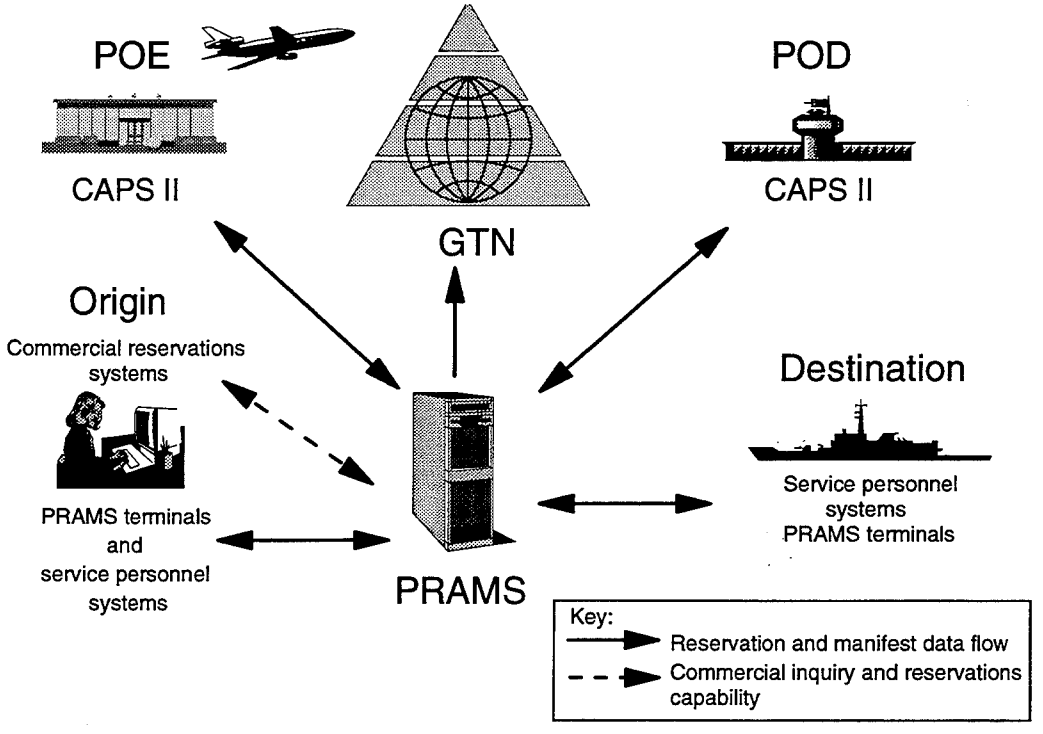


Figure 5.
Non-Unit Personnel — Operating Concept

In contrast, however, the Military Services' wartime personnel processing and tracking systems do not interface with PRAMS, which results in personnel managers manually keying reservation requests into PRAMS terminals. Confirmation and manifest information are also manually keyed into various personnel and AMC systems, which further inhibits the exchange of information and smooth transition from peace to wartime operations. Until the Military Services develop the capability to interface with PRAMS, they will continue to obtain

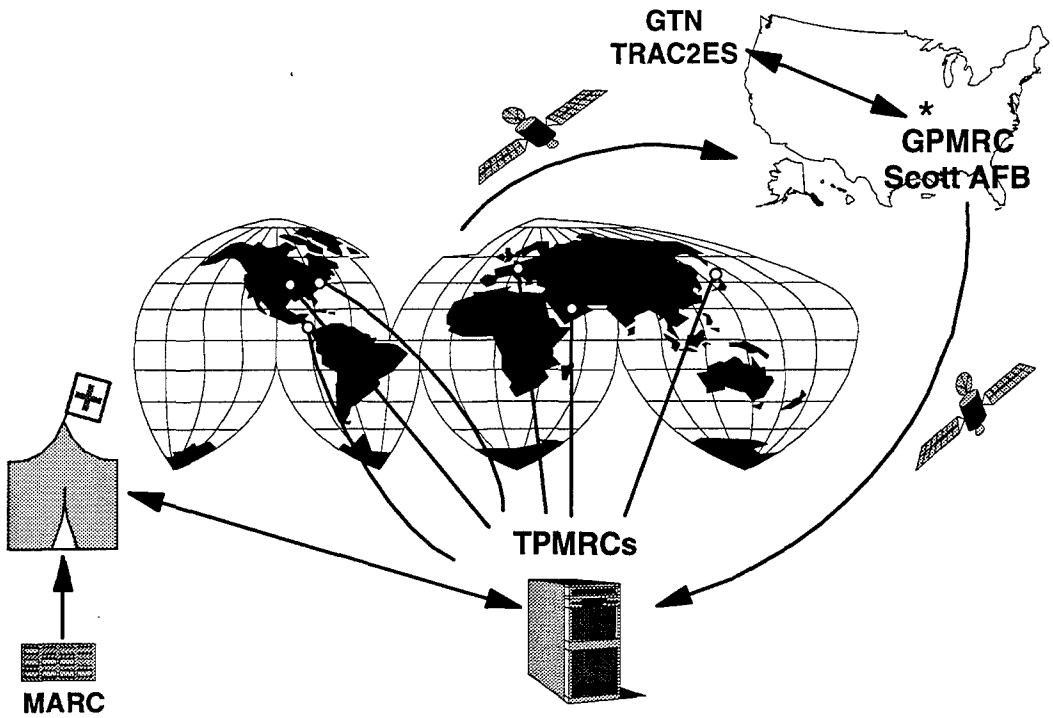
personnel movement information directly from GTN. The DoD's long-term goal is for personnel managers to directly access PRAMS for reservations, confirmations, and information on personnel movements. The Army needs to work with AMC to link PRAMS with its Replacement Operations Automation Management System (ROAMS). That electronic linkage could eventually serve as a standard for the other Military Service personnel systems. The linkage between PRAMS and ROAMS is scheduled to occur by June 1996, while AMC expects to have PRAMS linked to all commercial reservation systems by June 1995.

Personnel – Medical Patients

Another key subcomponent of personnel movements is the evacuation of medical patients from medical treatment facilities (MTF), whether in the theater or CONUS. To meet this requirement, USTRANSCOM is developing TRANSCOM's Regulating and Command & Control Evacuation System (TRAC2ES), one of four GTN modules. This system will capture patient care and movement requirements from MTFs worldwide, select the destination MTF, and schedule patients for evacuation. It will contain all essential patient data, along with selected transportation data. The operating concept for tracking patients is shown in Figure 6. USTRANSCOM expects to field an operational prototype of TRAC2ES by September 1997.

Personnel – Redeployment

Entire units and individual non-unit personnel are periodically reallocated, reassigned, or relocated to other areas of operation within a theater, to another theater, or back to CONUS. Theater commanders and the personnel community (gaining and losing commands, and service processing centers) are required to monitor and track these types of personnel redeployments, just like initial deployments. And like cargo, personnel redeployments have taken on added importance because of force downsizing and the potential need to rapidly redeploy those forces to new theaters of operations or return them to permanent bases for reconstitution. Therefore, the ITV operating concept for personnel redeployments is similar to that for personnel deployments. The schedule for implementing this capability also depends upon the development of a theater transportation system by December 1997 and the subsequent system interfaces by June 1999. However, DoD could achieve an interim capability through a GTN and TC AIMS interface by June 1996.



Note: GPMRC = Global Patient Movement Requirements Center; TPMRC = Theater Patient Movement Control Center; MARC = Multitechnology Automated Reader Card.

Figure 6.
Medical Patient Operating Concept

Additional Key Actions

The DoD's ITV challenge is far greater than completing GTN and developing system interfaces to capture various movement data for every functional area. It also needs to accomplish seven major activities:

- *Improve data quality and timeliness.* As the DoD's lead organization for transportation matters, USTRANSCOM needs to develop new and simplified transportation policies, procedures, and standards that are geared toward improving the quality and timeliness of transportation data. Those policies, procedures, and standards, which should be incorporated within a new Defense transportation regulation, would replace a myriad of existing transportation regulations. In developing those policies and procedures, USTRANSCOM would need to evaluate and reengineer transportation processes and systems. However, simply developing new policies and operating procedures is not sufficient. Defense shippers and consignees must comply with them. One way to ensure compliance is to standardize education, training, and certification of Military Service and Defense agency transportation agents. Those agents would be accountable for the quality and timeliness of transportation data. In addition to improving the quality of data from its

own shipping activities, the DoD must also improve commercial vendor and carrier compliance to DoD regulations, policies, and procedures through new contractual terms.

- *Develop a joint theater transportation system.* The DoD requires a joint theater transportation system that can be implemented readily in any part of the world. This system should be capable of processing shipment information received from port systems; tracking containers and pallets; reading automatic identification technology (AIT) and other devices; interfacing with GTN; and generating documentation for deploying and redeploying unit cargo and personnel, and for retrograde cargo. It should also provide information for intratheater movements. Finally, it should be capable of being deployed in any theater and developed using standard data elements.

  The Deputy Under Secretary of Defense (Logistics), DUSD(L), in coordination with the Joint Staff, should designate a project executive agent for managing the development of the theater transportation system. In accordance with its charter, the JTCC would support the project executive agent by establishing performance objectives for the theater transportation system; conducting process improvements applying corporate information management methodologies; coordinating with the Joint Staff, Military Services, and theater CINCs to establish a baseline of current theater systems capabilities; comparing existing Military Service system capabilities against the performance objectives to identify those that are not satisfied; and recommending existing or new systems to serve as the foundation for the theater transportation system. Finally, the project executive agent would recommend through the Joint Staff, that the DUSD(L) designate either USTRANSCOM or a Military Service as the acquisition agency to develop and integrate the system.

  If the TAV JTF identifies additional requirements for the theater system that expand its functionality beyond the scope of transportation, the project exectuve agent should be responsible for the greater theater material management system, including the transportation module. The JTCC will be accountable to the project executive agent and will be responsible for only the transportation module.

- *Enhance communications capacity.* The DoD needs to ensure the availability of adequate communications capacity to support ITV requirements in peace and war. While some commercial networks could augment existing DoD capabilities, even the combination of Defense and commercial networks may be inadequate in some theaters. USTRANSCOM should determine the communications requirements of GTN and other source systems. It should then work with theater communications, operations, and logistics staffs to develop a strategy for prioritizing and allocating assured communications capacity. The DoD also needs to establish an EDI value-added network in cooperation with commercial carriers and vendors to provide a means of capturing shipment and location status data.

- *Implement a system migration strategy.* The CIM program will ultimately reduce the number of Defense transportation systems, which will reduce the number of system interfaces required to support ITV. Thus far, only three migration systems included in the ITV operating concept have been selected – GTN, DTTS, and WPS. Any reference to other candidate migration systems is not intended to endorse a particular system. In fact, the systems that will actually support the operating concepts in this integration plan are entirely dependent on the JTCC system migration process.

- *Ensure systems continuity.* The CIM program is also reducing the funding for the maintenance of existing transportation systems and the development of new systems. Those reductions have slowed the implementation of ITV system interfaces, automated identification technology integration efforts, policy and procedural enhancements, and EDI capabilities at many Defense transportation activities. OSD should require Defense transportation activities to include those capabilities in all CIM migration systems. In some exceptional cases, OSD should also support the Military Services and DLA to implement critical legacy systems changes.

- *Secure funding and resources.* While many ITV programs have already been partially or completely funded, significant funding and personnel resources are needed to field the comprehensive program outlined in this integration plan. In accordance with OSD guidance, the Military Service or Defense agency identified as the lead agent for each portion of the ITV operating concept is responsible for identifying and budgeting for the required resources. Those resources include systems development and enhancement, program development and coordination, organizational restructuring, and operating costs. For system development and enhancements, OSD will supply additional funding guidance as the JTCC promulgates the transportation system migration strategy.

- *Implement an AIT approach.* The DoD should use AIT to provide supplemental ITV data whenever adequate communications capacity for logistics information exchanges may not be available. AIT devices could provide supply content information for receipt and inventory management, and facilitate the collection of transportation information at key nodes for movement, staging, and diversion decisions. Supply content information could be included on either a two-dimensional bar code, laser card, or radio frequency (RF) tag. Transportation information could be included on an RF tag, laser card, or two-dimensional bar codes on the military shipping label located on the outside of the shipping container (either a seavan or milvan). The specific technology– whether reflective or omni-directional RF, laser card, or two-dimensional bar code – depends on user requirements and concept of operations. The use of a two-dimensional bar code, laser card, and/or an RF tag would provide the DoD with the capability to capture content information and track containers using existing technologies. USTRANSCOM will propose a strategy that identifies the technology, operating concept, and implementation plan for using AIT in Defense transportation. This strategy

will be submitted to the TAV JTF for incorporation into the overall TAV strategy.

SUMMARY

Many of the DoD's logistics problems during Desert Shield/Storm would be minimized in future deployments if USTRANSCOM completes the development of GTN and integrates it into the TAV systems architecture. If DoD accomplishes the actions described above, operations and logistics users would be able to track shipments at the requisition and item level from source to destination. They would also be able to identify intransit asset attrition, divert shipments, track unit deployments, make decisions about theater infrastructure and support, and prepare theater onward movement plans.

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CHAPTER 1

Introduction

BACKGROUND

Defense automated systems and processes do not provide theater commanders with adequate information about shipments enroute. This shortage of information was particularly acute during Desert Shield/Storm. More than 20,000 of 40,000 containers entering the theater had to be stopped, opened, inventoried, resealed, and reentered into the transportation system. The effects of those actions were twofold: U.S. forces did not receive critical equipment and supplies in a timely manner, and DoD paid an estimated $150 million in unnecessary demurrage and detention fees for containers.[1] Recent military exercises have confirmed that a comprehensive intransit visibility (ITV) program is key to diverting units or shipments to higher priority destinations and reconstituting shipments to satisfy the immediate needs of theater commanders.

Intransit visibility is defined as the ability to track the identity, status, and location of DoD unit and non-unit cargo and passengers, patients, and personal property from origin to consignee or destination during peace, contingencies, and war. In times of peace, ITV becomes an important fiscal management tool. It reduces the cost of materiel in the logistics pipeline and decreases inventory and warehousing costs. During contingencies and wartime, ITV has the potential to significantly affect the preparation for or outcome of a battle or war.

The DoD has designated ITV a high-priority initiative. Subsequent to Desert Shield/Storm, the Assistant Secretary of Defense (Production and Logistics) developed a Total Asset Visibility (TAV) Plan that "provides for the phased implementation of the key policies, procedures, systems, and related communications technologies required by operators and logisticians for essential visibility of DoD materiel assets." ITV is an important component of TAV.

More recently, the Deputy Under Secretary of Defense (Logistics), DUSD(L), and U.S. Transportation Command (USTRANSCOM) have jointly worked with the Military Services and Defense agencies to develop an integration plan for ITV. This report presents that plan. The plan should lead to determining the functional design requirements for ITV, developing a baseline of current capabilities, identifying the gaps or deficiencies in the current and planned capabilities, formulating an operating concept for capturing ITV data, and preparing implementation plans to realize that operating concept. It is not intended to provide either the technical architecture, user interface requirements, or the detailed requirements for the completed system. It also does not include an economic

[1] GAO Report NSIAD-92-258, *Operation Desert Storm, Lack of Accountability Over Material During Redeployment,* May 1992.

analysis. USTRANSCOM will use the plan to oversee the progress of Defense transportation components in implementing various components of the total ITV system. The GTN (Global Transportation Network) Program Management Office (PMO) will use the plan to prioritize and schedule its development efforts. The Office of the Secretary of Defense (OSD) will rely on the plan to establish policies and procedures and to support Military Service and agency funding and resource budgeting efforts. Finally, the plan focuses the ITV development efforts of the Military Services, Defense agencies, USTRANSCOM and its transportation component commands, and the Joint Staff on a singular course of action.

Overview of Current Operations

Figure 1-1 illustrates a generic model for the movement of DoD unit and non-unit cargo and passengers from a CONUS origin to an overseas theater. The model divides the ITV pipeline into three major segments: CONUS, intertheater, and theater.

The CONUS segment involves much of the DoD's supply and transportation network. Typically, a requisition is sent electronically from the theater to the Defense Automatic Addressing System (DAAS), which then routes the requisition to the inventory control point (ICP) responsible for managing the item being requisitioned. After processing the requisition, the ICP creates a movement requirement and sends it to one of approximately 30 maintenance or supply depots in CONUS under the management of the Defense Logistics Agency (DLA). The depot then ships the item to either a container consolidation point (CCP) or directly to the port of embarkation (POE). Alternatively, the ICP may authorize a commercial vendor to supply and transport the item directly to the POE, port of debarkation (POD), or final destination.

After a shipment is unloaded at the POD, it is sent to either a Military Service or Defense agency supply location, a military unit, or a theater distribution point.

Units move from their CONUS locations to POEs using either commercial or organic transportation assets. At the POE, unit equipment enters the intertheater segment of the ITV pipeline. USTRANSCOM operates two types of POEs – air (operated by the Air Mobility Command, AMC); and surface (operated by the Military Traffic Management Command, MTMC). At some locations the Military Services operate their own POEs. The POE operating system then creates a manifest for the unit equipment and coordinates its loading on an AMC cargo plane; commercial aircraft; Military Sealift Command (MSC) ship; or commercial ship for delivery to the POD. After being unloaded at the POD, the unit equipment is then moved forward to its destination.

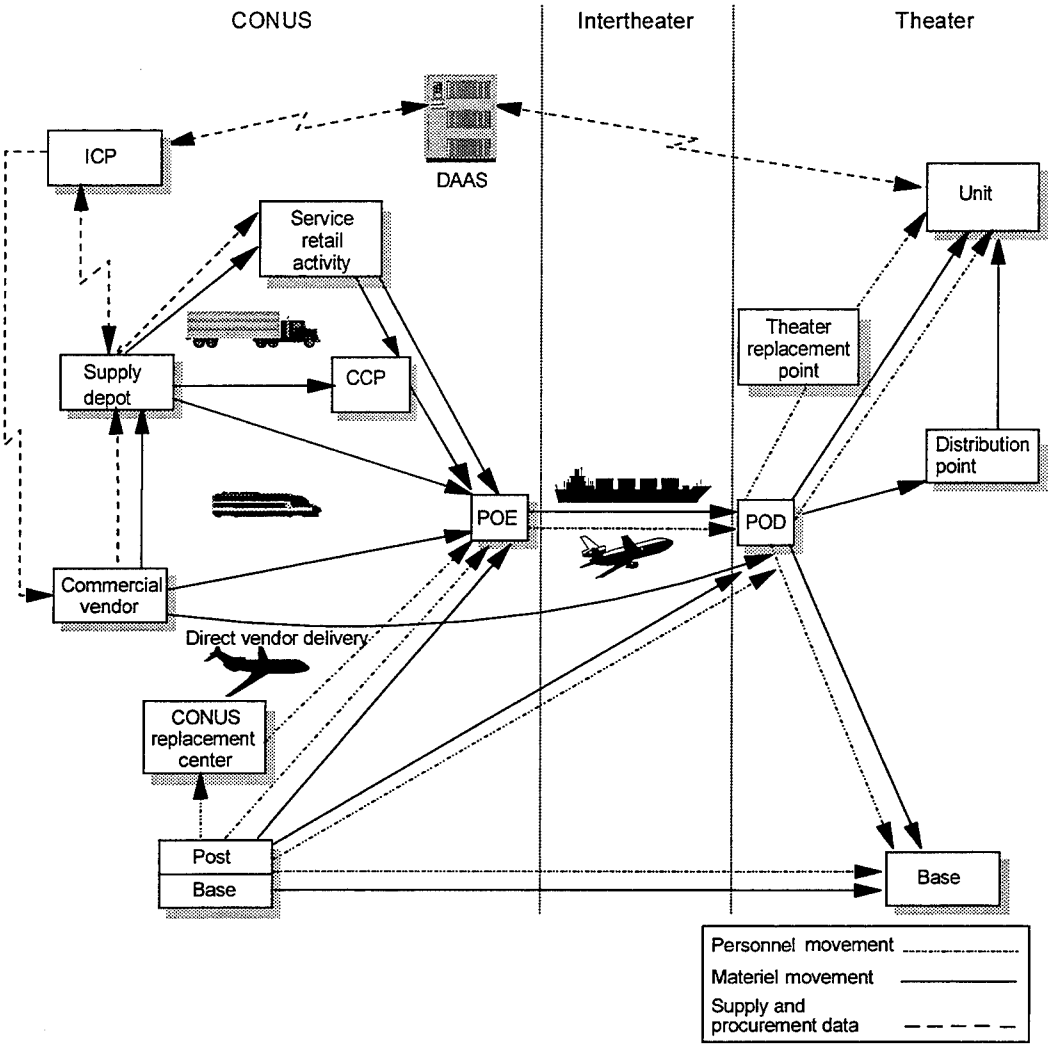

Figure 1-1.
Current Operating Environment

ONGOING INITIATIVES

Within the past few years, the DoD has attempted to attain ITV through a number of separate initiatives. Some of the most important initiatives are described in more detail below.

Global Transportation Network ITV Module

The USTRANSCOM is developing the GTN as a command and control information system to aid in satisfying its mission of global transportation management. Commanders will use information from GTN to aid in the decision-making process. GTN consists of four subsystems — current

operations, future operations, patient movement, and ITV. Thus far, USTRANSCOM has focused its ITV subsystem development efforts on tracking cargo and personnel between the POE and POD.

At the heart of DoD's ITV operating concept is the ITV module of GTN. It will be DoD's comprehensive data base of intransit shipment information, including all military, government bill of lading (GBL), commercial bill of lading (CBL), and vendor documented shipments. It will also capture shipment status, booking information, passenger reservations and manifests, personal property, medical patients, and vessel and aircraft scheduling data. This integration plan identifies the operating concepts and implementation schedules for gathering that information. It does not identify the system interface requirements and operating concepts for accommodating ITV and TAV user inquiries. The user interface requirements for command and control will be identified when the Global Command and Control System (GCCS) is developed. The optimal technical configurations and operating concepts for facilitating all other user inquiry requirements will be identified when the TAV Joint Task Force (JTF) finalizes DoD's TAV requirements.

As a result of the complexities of GTN, USTRANSCOM is developing and deploying the system in phases. In 1989, USTRANSCOM demonstrated an ITV "proof-of-concept" prototype. The prototype focused on providing answers to a small number of ITV queries (principally the location or status of ammunition shipments, containers, and passenger movements) by pulling "real-time" ITV information from existing data bases.

In 1990, USTRANSCOM fielded Version 1 of GTN. Although Version 1 relied on the same ITV architecture and systems developed for the prototype, it differed in two areas: it used leased instead of dial-up telephone lines, and it used a cache (temporary) data base to retain query information for 24 hours.

Since both the prototype and Version 1 systems relied on pulling data from participating systems, they were highly communications-intensive. They also processed queries individually and did not retain the results. In an attempt to resolve those problems, USTRANSCOM developed GTN Version 2, which uses the participating systems to "push" information to a centralized data base as part of their normal protocols and processing workloads. This architecture permits GTN to support a much larger base of customers without significantly increasing the interactive user-load on the supporting systems.

Version 2.1, which USTRANSCOM fielded as a prototype in the second quarter of FY93, focuses on tracking air cargo and air passengers moving from POE to POD. Figure 1-2 shows the four systems that provide data to GTN Version 2.1. (See Appendix A for descriptions of these and other systems associated with the DoD's ITV initiative.) Version 2.1 uses MILSTRIP AS transactions received from DAAS to link the requisition number; national stock number (NSN); and transportation control number (TCN). The TCN is then linked to Advance Transportation Control and Movement Document (ATCMD) data received from AMC port activities using the Headquarters On-line System for Transportation

(HOST) network of systems. Some unit movement data are also captured from HOST. For passenger movements, GTN receives social security numbers and names from the Passenger Reservation and Manifesting System (PRAMS), AMC's passenger reservation system. It also receives aircraft scheduling information from AMC's Global Decision Support System (GDSS).

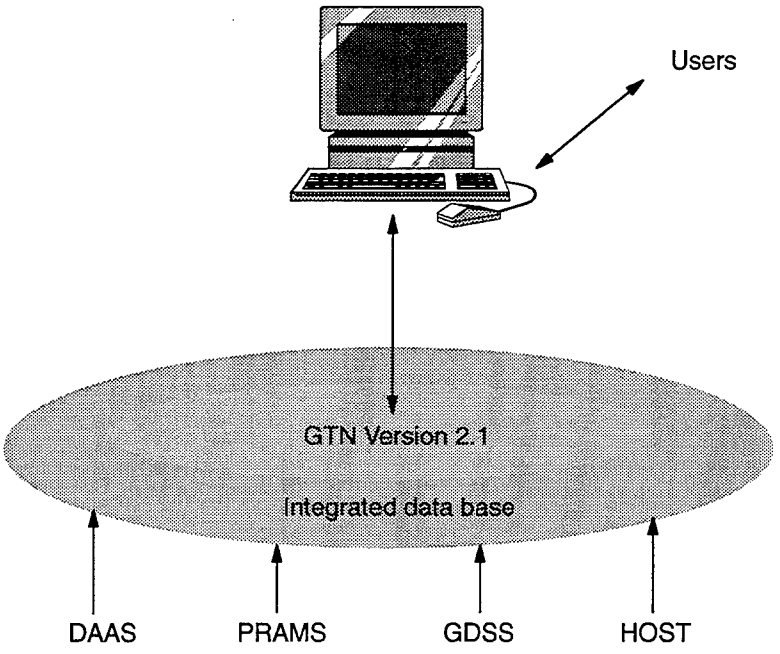

Figure 1-2.
GTN Version 2.1 — Air Interfaces

GTN Version 2.2, fielded in January 1994, adds similar capability for surface shipments. Figure 1-3 shows the system interfaces required for this version of GTN. Like Version 2.1, DAAS provides the requisition number, NSN, and TCN data. MTMC's Worldwide Port System (WPS), Terminal Management System (TERMS), and Military Export Traffic System (METS II) provide GTN with transportation control movement document (TCMD), booking, and other shipment information for surface cargo shipments moving between POE and POD.

GTN Version 2.3 uses an improved GDSS interface to provide enhanced visibility over air missions. It also has expanded query capability for air and surface missions.

While Version 2.3 of GTN provides ITV capability only between POE and POD, it establishes the foundation for expanding ITV capability to include CONUS sources for both cargo and passengers, as well as theater movements of cargo, passengers, and patients. USTRANSCOM is now in the process of awarding a contract to build the production version of GTN. That version will support the ITV concept of operations and requirements present in this plan.

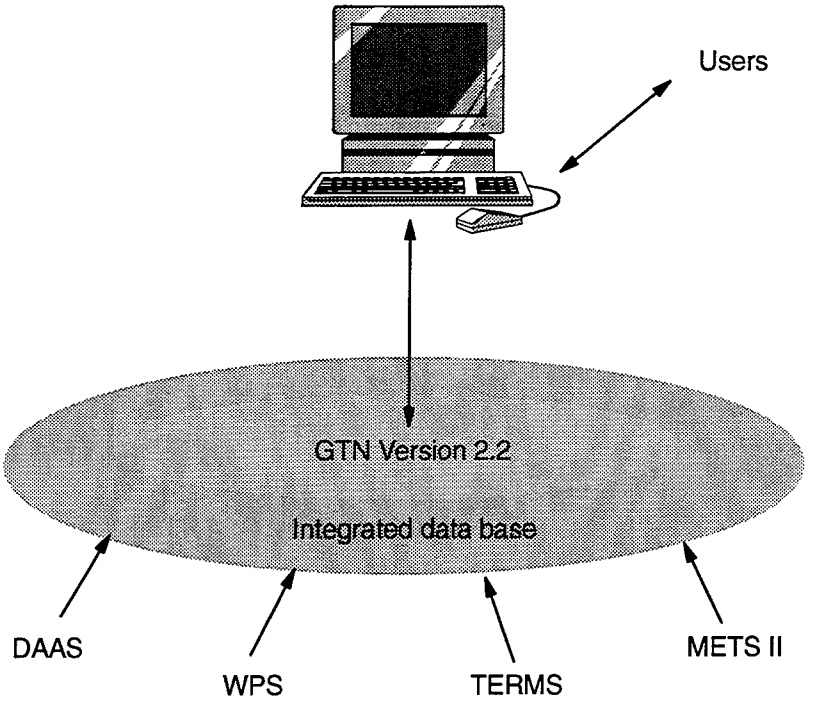

Figure 1-3.
GTN Version 2.2 — Surface Interfaces

Global Transportation Network TRAC2ES Module

The USTRANSCOM Surgeon has been developing a patient movement subsystem, TRANSCOM's Regulating and Command & Control Evacuation System (TRAC2ES), since early 1993. Patient ITV is a major by-product of this subsystem.

TRAC2ES was initiated to assist USTRANSCOM with its intertheater and CONUS medical regulating and aeromedical evacuation mission. Since then, it has been expanded to include the intratheater regulating and evacuation mission. Mission execution remains the responsibility of the supported theater CINC.

The proof of concept for TRAC2ES was accomplished in January 1994. The first prototype version began CONUS testing in the middle of 1994, with an operational prototype scheduled for fielding in the third quarter of 1997.

Defense Transportation EDI Program

When fully implemented, the Defense transportation electronic data interchange (DTEDI) program will replace many routine DoD freight and personal property documents with electronic data interchange (EDI) transactions. The

centerpiece of that program is the Defense Finance and Accounting Service – Indianapolis Center's (DFAS-IN's) Defense Transportation Payment System (DTRS). Although developed principally to replace an outdated payment system, DTRS will also support electronic auditing and payment. DoD has also installed a telecommunications network and developed the EDI standards required for exchanging electronic shipment and invoice information with its commercial trading partners. Further, MTMC has modified its regulations, policies, and procedures to permit the use of electronic versions of the GBL.

Figure 1-4 shows the operating concept of the DTEDI program. When fully operational, the program will involve more than 600 CONUS shipping activities, three transportation payment centers, and MTMC. Chapter 3 presents more details on the operating concept and requirements for the DTEDI program.

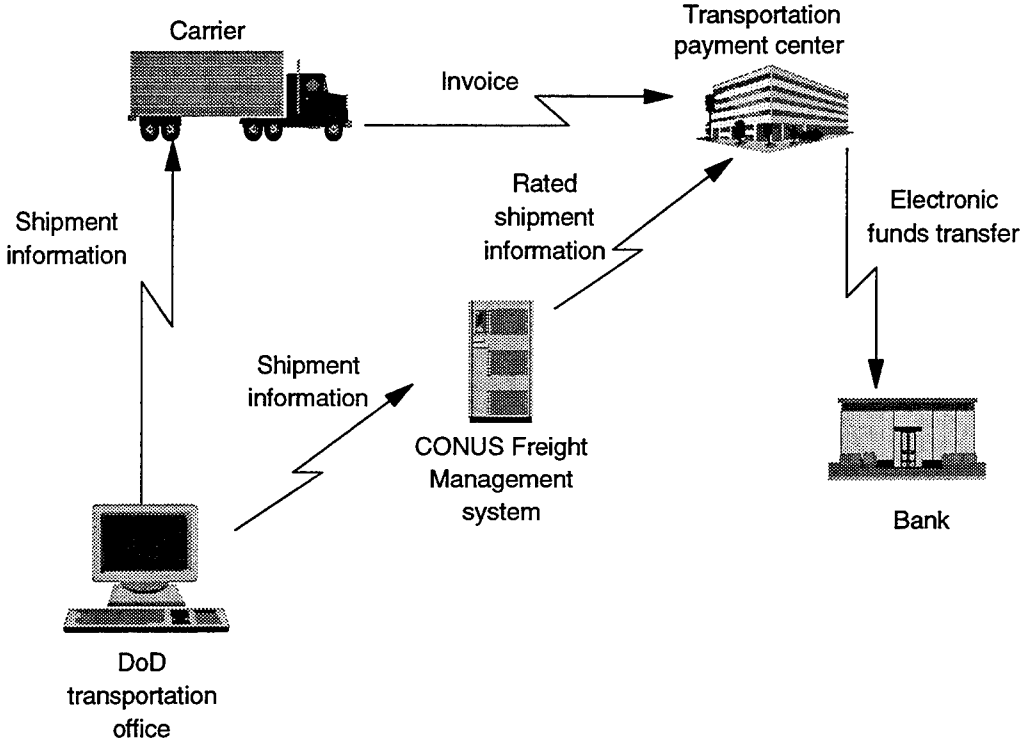

Figure 1-4.
DTEDI Operating Concept

While the initial focus of the DTEDI program is to support the electronic audit and payment of freight and personal property shipment invoices, the EDI infrastructure it establishes will enable the DoD to capture much-needed CONUS source data for ITV. The DoD issues more than 1.3 million freight GBLs every year. Over 80 percent of those GBLs, and the associated TCNs, are generated at shipping activities targeted by the DTEDI program. Furthermore, MTMC's newly developed CONUS Freight Management (CFM) system will capture the shipment information necessary for ITV applications.

In February 1994, the DoD implemented the DTEDI program at a handful of shipping activities, a few commercial carriers, DFAS-IN, and MTMC.

TC AIMS

In 1987, the Joint Staff established a requirement for each Military Service to develop an automated system for providing unit movement ITV information from CONUS origin to the POD. In response to that requirement, the Army is fielding the Transportation Coordinator – Automated Command and Control Information System (TC ACCIS); the Air Force is fielding the Cargo Movement Operating System (CMOS); and the Marine Corps has fielded the Marine Air Ground Task Force II Logistics Automated Information System (MAGTF II/ LOGAIS). Together, those three systems comprise the Transportation Coordinator's Automated Information for Movement System (TC AIMS) family of systems.

Defense Transportation Tracking System

Commercial motor carriers, under contract to the DoD, transport more than 55,000 arms, ammunition, and explosive shipments each year throughout CONUS. Because of their high level of public exposure and sensitivity, DoD requires that those shipments, as well as an increasing number of hazardous material shipments, be monitored from origin to destination. The Defense Transportation Tracking System (DTTS), located in Norfolk, Va., performs that task using both motor surveillance and satellite monitoring.[2]

DTTS receives shipment information in a variety of formats (phone, facsimile, and remote terminal entry) from over 200 activities. It then links shipment information to hourly automatic position reports received via satellite from transponders attached to the commercial trucks transporting the shipments. Those transponders also provide emergency position-location messages to DTTS and the parent carrier during accidents and emergencies.

The use of DTTS is expanding rapidly. In FY91, it tracked the movement of approximately 16,000 ammunition shipments. Three years later, the number of shipments tracked has increased to 55,000. To keep pace with this growth, DTTS, in conjunction with MTMC's CFM system, is implementing the use of EDI to receive GBL information electronically from ordnance shippers that participate in the DTEDI program.

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[2]The Naval Sea Systems Command (NAVSEA) and the Naval Supply Systems Command (NAVSUP) jointly developed DTTS; MTMC is the program manager; the Naval Ordnance Command (NOC) serves as the executive agent for systems development; and the Navy Material Transportation Office (NAVMTO) is the system operator.

Defense Total Asset Visibility

In March 1994, the DUSD(L) sponsored a Total Asset Visibility Conference. The purpose of this conference was to identify the "most successful" government and industry practices, review adaptable technologies and approaches, and develop road maps for implementing TAV. Implementation is to focus on two categories of TAV users: operating users (units, Military Service headquarters, and weapon system managers) and logistics system users (principally retail and wholesale inventory managers, and transportation managers).

Since that conference, the DUSD(L) has established the TAV JTF to identify the required TAV systems architecture and develop a plan for its implementation. The TAV JTF will recommend numerous enhancements to the supply, transportation, maintenance, and production segments of the logistics pipeline for purposes of achieving a "seamless" logistics system. The technical architecture for such a system would include fully integrated intransit, inprocess, and instorage asset visibility modules. (Chapter 2 of this report discusses the integration of GTN's ITV capability with the greater TAV program.)

Automatic Identification Technology

Use of electronic tagging media to mark the contents of containerized and palletized shipments is vital to achieving ITV, particularly in theaters where adequate communications capacity for logistics information exchanges cannot be ensured. Those media, commonly referred to as automatic identification technology (AIT), are to employ a standard supply and transportation data set for documenting the contents of surface containers and air pallets. The requirements for that data set were detailed in a Deputy Assistant Secretary of Defense (Logistics) memorandum of 9 September 1992. Some of the features of AIT are to

- identify the contents of containers, pallets, and consolidated shipments from line-item manifest and packing information;
- provide container-content detail (resupply line item detail data) on a single tag;
- transfer of container or pallet content data automatically into unit and theater supply data bases;
- share data with a variety of commercial- and government-owned computer hardware;
- enable worldwide interoperability and technology certification;

- operate in warehouses, terminal facilities, ocean vessels, aircraft, land vehicles, and all DoD equipment used for moving containerized, unitized, and palletized shipments;

- operate in a wide range of outdoor environments, from deserts to open seas; and

- operate safely in close proximity to munitions and hazardous material.

SUMMARY

During the past five years, DoD has launched several ITV initiatives. In particular, USTRANSCOM has made considerable progress in laying the foundation, through GTN, for a DoD-wide ITV capability. As presently configured, however, GTN will not provide the necessary visibility. Significant gaps still exist in both the source (CONUS) and theater portions of the pipeline.

Nonetheless, the DoD needs to integrate GTN with its existing ITV and TAV initiatives, and expand the capabilities of GTN to capture CONUS source and theater information. When that integration and expansion are complete, the DoD will have a powerful ITV capability. This document presents DoD's plan for developing such a capability. The components of the plan are presented in four chapters and three appendices:

- Chapter 2 describes the DoD's ITV requirements, presents an overview of the system interfaces and operating concept for satisfying those requirements, and identifies the key issues that the DoD must resolve before it can successfully implement the operating concept.

- Chapter 3 presents an operating concept for ITV based on the premise that GTN is the central ITV data base for Defense cargo and personnel moving from origin to destination.

- Chapter 4 sequences the implementation of the various operating concept components and system interfaces according to their feasibility and relative benefit.

- Appendix A describes some of the key information systems supporting the DoD's ITV requirements. Appendix B defines many of the terms used in this report, while Appendix C presents the implementation plans for each functional area of ITV.

CHAPTER 2

Requirements and Key Considerations

INTRODUCTION

This chapter presents the DoD's requirements for ITV, the impediments to achieving ITV, and the recommended approaches for resolving those impediments. To ensure participation throughout the Defense community and gain a consensus on the requirements and the operating concepts that support those requirements, USTRANSCOM formed several action teams consisting of representatives from the Military Services, DLA, transportation component commands (TCCs), Joint Staff, CINCs, and OSD. USTRANSCOM tasked each action team to address one functional area of ITV – unit and non-unit cargo, unit and non-unit passengers, medical patients, and personal property. USTRANSCOM elected to partition ITV into those areas because they have different requirements, operating concepts, and automated systems; it also sought to divide the implementation effort into manageable programs.

In some cases, such as with the CONUS portion of non-unit cargo, the action teams met formally. In others, action team members were interviewed individually. In all cases, the ITV requirements and the operating concepts for achieving them were fully documented.

REQUIREMENTS

The DoD has several requirements for an ITV system. It must track personnel movements from origin to destination. It must identify the contents of a shipment and monitor the shipment's location as the shipment moves from origin to destination. The ITV system must be linked to command and control systems such as Joint Operation Planning and Execution System (JOPES) and ultimately the GCCS. It must enhance the DoD's ability to track individual requisitions, items, and unit movements; reconstitute shipments; and divert shipments to new destinations. It must also have the capability to operate from origin to destination (including redeployments and retrograde shipments); be available during peace, contingencies, and war; and support both the operations and logistics communities. Each of these requirements is described in more detail below.

Track Personnel Movements

Modern commercial communications and instantaneous media coverage of personnel movements have placed additional demands upon the DoD to

maintain constant visibility of personnel moving to and from overseas theaters. Although some ITV of personnel movements exists, that visibility is obtained through manual entry of non-standard manifest data. USTRANSCOM and the Military Services have already made substantial investments in developing automated systems to obtain detailed personnel and patient evacuation information, but those systems are neither fully fielded nor linked to share information. Since DoD has a requirement to maintain visibility of all Defense personnel, including medical patients, moving on organic and commercial transportation in peace and war, it needs a responsive, totally integrated personnel movements tracking system that provides access to commercial reservations systems for purposes of retrieving passenger information.

Identify Shipment Contents

As shipments move from origin to destination, every activity that handles them requires some level of content information. While most transportation activities do not need detailed shipment-content data, materiel management centers and movement control centers require item- and TCN-level data to route shipments to locations that most need the material. Detailed content data are also needed when shipments reach their final destinations.

USTRANSCOM is developing GTN to become the central data base for DoD content-level data. In addition, AITs can provide auxiliary capability in the absence of either an adequate theater logistics communications capacity or a theater system.

Determine Shipment Locations

The GTN Version 2 prototype relies on various military port systems to provide status updates when shipments enter and leave ports. Once a shipment is under a commercial carrier's control, however, the GTN prototype is unable to report location changes until the shipment is offloaded at another DoD port. Even when GTN expands its interfaces to CONUS and theater DoD systems, it will not have location visibility over shipments as they move between DoD activities. This level of location visibility is not sufficient for some shipments.

One technique for enhancing DoD's shipment location visibility is through EDI interfaces with commercial carriers. Today, many CONUS carriers provide EDI status messages to their customers on a regular basis. The DoD could use the information in those messages to enhance its ability to track assets while intransit.

Track Requisitions and Items

The operating concept must support not only the ITV requirements of the transportation community, but also those of supply, maintenance, and theater

commands. As a consequence, DoD needs more visibility over its shipments than either the manifest or TCN provides. It needs visibility down to the requisition number; NSN; unit identifier code (UIC); unit-line number (ULN); or other unique identifier.

Track Unit Movements

The current national military strategy of force projection makes the tracking of units during deployments particularly crucial. The process of tracking units begins with the capture of ITV information from the origin site and continues with updated movement information throughout the deployment process. The key nodes for reporting movement information are the initial deployment site, aerial or surface POEs and PODs, intermediate staging bases, and destination.

Identify, Reconstitute, and Divert Shipments

Theater commanders, logistics planners, and shippers must have visibility over cargo and personnel movements. Ships and aircraft are subject to mechanical breakdowns and enemy action, and the flow of battle often results in changed materiel requirements. In recognition of these potential changes, the DoD needs to enhance its reconstitution and diversion capabilities. The breakdown and subsequent cross-loading of the Fast Sealift Ship (FSS) Antares and the enroute diversion of the critical Patriot missile reloads during the Persian Gulf War are recent examples of this requirement.

Provide Visibility from Origin to Destination

The origin of a shipment is defined as the point where a unit begins deployment, an installation transportation officer assigns a TCN, a commercial vendor initiates the movement of assets to a Defense activity, or a passenger (patient) begins travel. The destination is the location where an item is consigned, a unit is deployed, or a passenger (patient) is traveling. In the case of redeployments or retrograde shipments, the origin is the current location and the destination is a new CONUS, intratheater, or intertheater location.

As described in Chapter 1, the GTN prototype provides limited ITV capability between the POE and the POD. USTRANSCOM plans to expand that capability to include both the CONUS and theater segments. Within CONUS, DoD has sufficient capability in various information systems to provide GTN with the required ITV data. The overseas theaters, however, present a much greater challenge because many have neither the required systems capability nor the communications capacity to transmit intransit data to GTN.

Provide a Seamless Transition From Peace to War

The Military Services, Defense agencies, and single managers for air, sea, and land transportation have independently developed and managed transportation systems. MILSTAMP and the Defense Transportation Management Regulation (DTMR) provided the policies, procedures, and data standards, but they did not attempt to coordinate or integrate the DoD's air and surface systems. Although joint doctrine sought to build an integrated transportation capability from independent systems for crisis operations, it always fell short. As a result, DoD's peacetime system is not seamless and could not easily support a rapid transition to crisis planning and execution.

In January 1993, DoD Directive 5158.4, "United States Transportation Command," strengthened USTRANSCOM's mission and gave it the authority to integrate peace and wartime transportation policies, procedures, and capabilities. Then in August 1993, the DUSD(L) approved the charter establishing the Joint Transportation CIM (Corporate Information Management) Center, JTCC, and assigned it a mission "to improve the efficiency and effectiveness of the DTS through the application of functional process improvement techniques and the central control of transportation-related [command, control, communications, and computer] C4 system development." The JTCC was directed to work closely with DoD Components, Joint Logistics System Center (JLSC), and Defense Distribution Systems Center (DDSC) on all interfaces between transportation-related C4 systems and DoD's logistics and distribution systems.

Link With Operations and Logistics Communities

The DoD's ITV system must be linked to the ultimate users of transportation and resources — the theater commanders. It further needs the capability to collect, integrate, and distribute transportation information in a timely manner to the decision-makers that control operations in the theater.

In the short term, USTRANSCOM will use GTN to provide ITV to the theater operations community through an interface with JOPES. Eventually; however, a classified GTN subsystem will need to serve as the transportation module of GCCS. That link between ITV and DoD's command and control systems will enable the unified commands to prepare more effective reception and onward movement plans and to propose transportation asset diversion alternatives.

KEY CONSIDERATIONS AND IMPLEMENTING ACTIONS

The USTRANSCOM's challenge is far greater than building GTN and developing system interfaces for capturing ITV data in all functional areas. Even when such a system is fielded and all interfaces with other systems are established, a number of unresolved policy, procedural, technical, and functional issues that restrict ITV would still remain. Until it resolves those issues, DoD would not have

the required visibility. Those issues include poor data quality, absence of timely data, lack of system and program integration, insufficient theater communications capacity, absence of a deployable theater system, incomplete implementation of a system migration strategy, inadequate funding for system enhancements, inability to agree on an AIT standard, and lack of an integrated approach to TAV.

Improve Data Quality and Timeliness

Effective ITV is possible only if the Defense and commercial systems that feed GTN provide timely and complete data with a high degree of accuracy. Experience with the GTN prototype repeatedly identified data sources that were unable to provide data with those attributes.

As an example, both AMC and MTMC estimated in April 1993 that their POEs received ATCMDs on fewer than 45 percent of all shipments. The reasons included lack of compliance by commercial vendors, processing delays at the air clearance authorities, and batch processing at MTMC ports. Furthermore, the GTN prototype is unable in many cases to respond accurately to user inquiries, primarily because of inadequate compliance with existing transportation policies, standards, and procedures. Similar quality and timeliness problems exist in the processing of GBLs and CBLs. Until it resolves those shortcomings, the DoD will never be able to develop a reliable ITV system.

Three actions are key to the development of a comprehensive, accurate, and responsive ITV system:

- *Develop new transportation regulations and procedures.* DoD currently maintains separate transportation regulations and procedures for various transportation applications. They include the Personal Property Traffic Management Regulation (PPTMR), DTMR, and MILSTAMP, to cite three. These and other documents are sometimes out of date or redundant; use antiquated standards and formats; and, in some cases, require the use of different codes for the same purpose. In response to these shortcomings, USTRANSCOM is developing a new Defense Transportation Regulation (DTR) that amalgamates, simplifies, and replaces existing standards and procedures.

- *Improve compliance with transportation regulations and standards.* When the new transportation regulations and procedures are developed, DoD should standardize education, training, and certification of Military Service and Defense agency transportation agents. Those agents would be accountable for the quality and timeliness of transportation data. Commercial vendor and carrier compliance with DoD regulations and procedures could be ensured by making ITV concepts a condition of all contracts.

- *Develop data standards.* A major reason for the poor quality of DoD transportation and supply data is the lack of electronic transmission standards. DoD needs to increase the use of EDI to fill this void. Commercial industry has

learned that the development and use of Accredited Standards Committee (ASC) X12 implementation guidelines reduces data compliance errors. Although DoD has begun to implement large EDI programs, it needs to expand the use of EDI. Further, DoD recognizes that the Electronic Data Interchange for Administration, Commerce, and Transport (EDIFACT) standards will be the long-term solution for EDI transmissions, particularly in OCONUS. At this time, however, implementing EDIFACT before the American National Standards Institute (ANSI) completes its EDIFACT migration strategy would seriously delay several active Defense EDI programs and therefore ITV. DoD will eventually migrate its EDI programs to EDIFACT when the migration strategy is developed.

Integrate Systems and Programs

One of the primary problems with the DoD's logistics systems is the lack of system integration. As a result, many functions, such as freight payment, continue to rely on documents as their primary source of information. Typically, Defense transportation information is printed on a document, mailed to another activity, and reentered into another Defense system. This manual reentry of information is costly and contributes to data timeliness and accuracy problems. The same situation exists in DoD's dealings with its commercial trading partners. The DoD needs to increase the integration of its transportation systems and programs and to establish better linkages with its commercial trading partners' systems.

Enhance Communications Capacity

To date, the DoD has not conducted a comprehensive analysis of the communications requirements of its transportation systems during a contingency. The DoD may need a deployable communications infrastructure primarily dedicated to logistics support. Such a capability would be more immune to competing demands from higher priority communications requirements. Therefore, DoD should identify, fund, and develop additional communications capabilities if GTN is to provide the required ITV during contingencies and war.

In addition, DoD needs to establish an EDI value-added network (VAN) to capture shipment and location status data from commercial carriers and vendors.

Develop Joint Theater Transportation System

Every war and contingency operation since Vietnam has reinforced the view that one of ITV's greatest paybacks is in the theater of operations. Although the development of GTN and the associated communications capability promise to result in the availability of ITV data to theater and other users, DoD still needs to develop and quickly implement a theater transportation system. Such a system should be capable of accommodating the deployment, in-theater movement,

receipt, and redeployment of unit and non-unit cargo and personnel. It should also be exportable to any theater worldwide and, at a minimum, meet the following requirements:

- Access DoD electronic communications networks
- Interface with automated information technologies
- Use ITV data to support movement planning, location reporting, and shipment receipt processing for intratheater and intertheater transportation
- Generate documentation for redeployment and retrograde shipments
- Interface with GTN and port systems
- Function as a module of a theater material management system, if the requirement for such a system is identified by the JTF on TAV.

Several existing systems, such as the TC AIMS suite of systems, Department of the Army Movement Management Systems – Redesigned (DAMMS-R) and Standard Theater Army Command and Control System (STACCS), provide limited capabilities in theater. However, a theater transportation system does not exist and no organization has been tasked to develop such a system. The DoD can develop a theater transportation system in a number of different ways, including the following.

- *Status quo.* Under this alternative, the Military Services and DLA would continue to develop theater ITV systems that meet their individual needs and then independently interface those systems with GTN and the port systems. Not only is this approach expensive, it has resulted in a proliferation of systems. Furthermore, none of those systems meets the needs of another DoD Component.
- *Military Service Project Executive Agent.* Under this alternative, one of the Military Services would be designated a project executive agent with responsibility for the design, development, integration, testing, and fielding of a theater transportation system. This alternative would encompass the risk of bias by the executive agent and the possibility that the selected system would not be acceptable to the other members of the Defense ITV community.
- *USTRANSCOM Project Executive Agent.* Under this alternative, USTRANSCOM, in coordination with the Joint Staff and theater CINCs, would be designated as an executive agent with responsibility for the design, development, integration, and implementation of a theater transportation system. The JTCC, as part of its charter, would support the executive agent by developing DTS process improvements and identifying CIM migration systems. This alternative would also be compatible with JTCC's work

plan, which calls for it to support GTN source, feeder, and related systems; and ITV initiatives.

The last alternative, USTRANSCOM management with JTCC support, appears to be the most logical because it offers the greatest likelihood for success. It would also ensure a focus on "jointness" by virtue of USTRANSCOM's and JTCC's links with both the DUSD(L) and Joint Staff.

In support of either executive agent alternative, the JTCC would need to take a number of actions, including the following:

- Develop DTS process improvements and establish performance objectives
- Evaluate existing system functionality to serve as the foundation for the theater transportation system
- Compare existing capabilities with the performance objectives to identify the shortfalls
- Request, through CINC USTRANSCOM (CINCTRANS), that the DUSD(L) designate either USTRANSCOM or a Military Service as the acquisition agent to develop the additional system functionality and integrate the system
- Identify funding requirements and sources
- Manage the integration of the functional areas requiring ITV development into the theater system.

If USTRANSCOM is designated the project executive agent, and if the TAV JTF identifies additional requirements for a theater material management system, USTRANSCOM and JTCC would be responsible for only the transportation module of that system. They would be accountable to the project executive agent designated for the entire theater material management system. A detailed theater transportation system implementation plan is provided in Appendix C.

Implement System Migration Strategy

The JTCC, as part of its charter, has developed a migration strategy for DoD's transportation systems. When implemented, that strategy will simplify the technical architecture required to support ITV by reducing the number of system interfaces and making more efficient use of system development and maintenance funds.

Thus far, JTCC has selected migration systems for only three systems that are part of the ITV operating concept – GTN, DTTS, and WPS. References to other candidate migration systems are not intended to endorse one system over another. In fact, the systems that will eventually be used to support the

operating concepts in this integration plan will come from the JTCC system migration process.

Ensure Systems Continuity

While the DoD develops strategies for migrating existing systems to single CIM systems, the funding for maintenance and enhancements to existing systems has been drastically reduced. Furthermore, some of the migration systems lack the existing capabilities of their predecessors. These situations continue to slow the implementation of EDI programs, AIT integration efforts, policy and procedural enhancements, and ITV system interfaces. In order to expedite the fielding of these programs, the DUSD(L) should require the Military Services and DLA to provide the necessary resources to implement key system enhancements in legacy systems.

Develop an Automatic Identification Technology Approach

Even after GTN is developed and the required system interfaces are in place, the risk of inadequate communications capacities in many potential theaters throughout the world will still be unacceptably high. To minimize that risk, DoD needs to augment its current data collection efforts with electronic tagging technology.

Chapter 1 provided an overview of the general requirements for container tagging in terms of a standard supply and transportation data set for documenting the contents of containers and air pallets. A September 1992 OSD memorandum specified that the DoD's electronic tagging technology must be integrated with current systems, such as standard bar-code formats and automated data bases.

The Logistics Management Institute reviewed the results of various tagging tests, collected performance measurement data, identified the strengths and weaknesses of the technologies employed, and assessed the costs for implementing the better technologies throughout the DoD. Those tagging tests included the Future-Eur-AIT test, which demonstrated the use of omni-directional radio frequency (RF) tags; DLA's Automated Manifest System test, which employed laser tags and memory cards; the Somalia air line of communication (ALOC) test, which examined a combination of laser and omni-directional RF technology; and various laboratory tests of two-dimensional bar-code symbology.

This review concluded that transportation and supply content information should be captured on two-dimensional bar codes or laser cards (depending on the number of requisitions in the shipment), and OSD should re-assess the Military Services' requirements for a RF tag located on the outside of shipping containers (either seavans or milvans). However, DoD should not select the specific RF technology, omni-directional or reflective, until the Defense community reaches agreement on the overall concept of operations and the amount of data

detail required on the outside of the container for movement, staging, and diversion decisions.

Such an overall concept of operations should include the following principles:

- DoD recognizes that the carrier industry has made significant investment in ANSI/International Standards Organization (ISO) tags and EDI.
- DoD does not expect carriers to read DoD's AIT devices.
- DoD expects to pay for any additional services it requires beyond common industry practice.
- DoD encourages and will participate in industry actions to broaden or establish ANSI/ISO standards.
- The carrier industry recognizes and supports DoD's unique need for data rich AIT devices with location finding, content inquiry, and on-demand access capabilities while in theater.

USTRANSCOM will propose a strategy that identifies the technology, operating concept, and implementation plan for using AIT in Defense transportation. This strategy will be submitted to the TAV JTF for incorporation into the overall TAV strategy.

Secure Funding and Resources

While many ITV programs have already been partially or completely funded (such as GTN development and the DTEDI program), significant funding and personnel resources are needed to field the comprehensive program outlined in this integration plan. In accordance with OSD guidance, the Military Service or Defense agency identified as the lead agent for each portion of the ITV operating concept is responsible for identifying and budgeting for the needed resources. Those resources include systems development and enhancement, program development and coordination, organizational restructuring, and operating costs. For system development and enhancements, OSD will supply additional funding guidance as the JTCC promulgates the transportation system migration strategy. Potential sources of funds for all other implementation activities include Defense Business Operations Fund – Transportation (DBOF-T), direct appropriation, or other sources.

Integrate ITV with TAV

The TAV concept categorizes military materiel as either inprocess, intransit, or instorage. Those categories are defined below:

- *Inprocess assets* — all materiel that are either on order from DoD vendors but not yet shipped, or undergoing repair at depot-level organic or commercial maintenance facilities, or at intermediate maintenance facilities.

- *Intransit assets* — all personnel and materiel that are being shipped from external procurement or repair sources, or moving within the DoD distribution system.

- *Instorage assets* — all materiel being stored at retail consumer sites (operating activity storerooms or warehouses); retail intermediate storage sites; contractor facilities (as government-furnished material); disposal activities; or wholesale depots.

These categories divide asset visibility into manageable programs, with USTRANSCOM having the lead for one category: intransit. Nonetheless, DoD has not yet developed an overall technical architecture for a long-term TAV program that incorporates inprocess, intransit, and instorage visibility requirements into an integrated data base. Without such a technical architecture, the TAV user would need to know whether a particular asset is inprocess, intransit, or instorage in order to track its location or status through the correct system. Further, every DoD system data base supporting TAV would need to replicate requisition and NSN data. To avoid this situation, OSD established a TAV JTF to develop an operating concept and implementation plan for a fully integrated TAV system.

The ITV requirements, operating concepts, and implementation schedules in this integration plan are consistent with the efforts of the TAV JTF. While this integration plan focuses only on ITV, in areas where TAV and ITV overlap (such as direct vendor delivery shipments, development of a theater material management system, and implementation of AIT), the proposed ITV operating concepts are consistent and complimentary with those supporting the TAV program.

The key to integrating TAV and ITV is the development of a single TAV user interface for all intransit, inprocess, and instorage assets. This interface is most likely to occur between GTN and DAAS/Logistics Information Processing System (LIPS), as well as other systems. One approach for such an interface is an open systems architecture (see Figure 2-1). The ITV module of GTN would function as the processor of intransit status requests, capturing intransit data from Defense and commercial transportation systems and then updating the TAV data base. In turn, the TAV system would make all ITV records available for user inquiries.

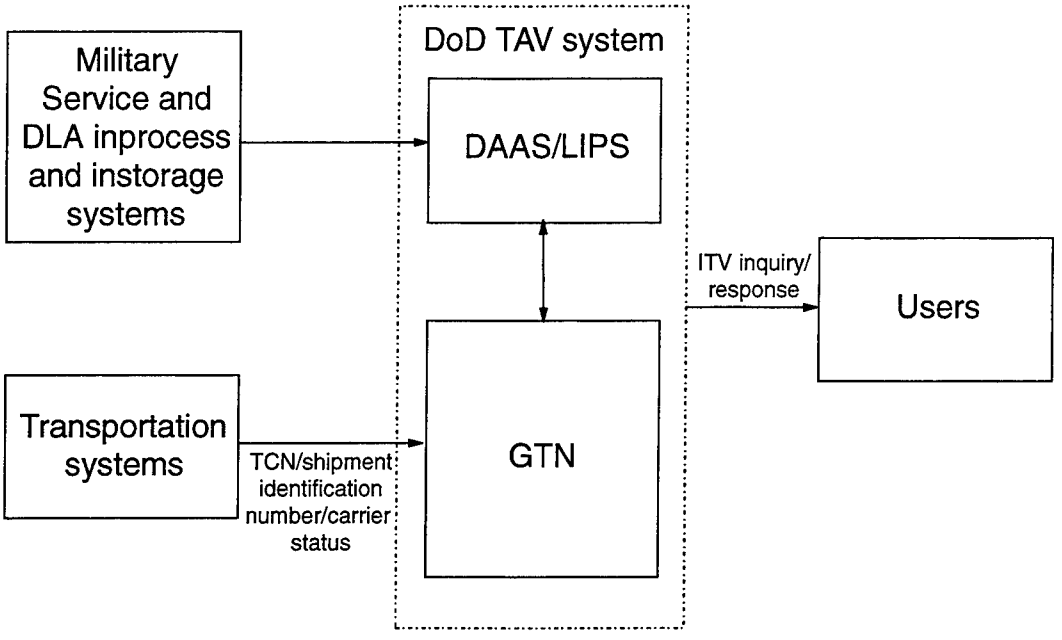


Figure 2-1.
Fully Integrated TAV

SUMMARY

This chapter presents an overview of the requirements and other key considerations for implementing ITV. It identifies a number of issues that, if left unresolved, would prohibit the DoD from developing a comprehensive ITV capability. To resolve those issues, DoD needs to improve the timeliness and quality of its data; develop a single, comprehensive transportation policy and procedure regulation; and expand the use of EDI internally and when exchanging information with commercial carriers and vendors. It should also implement the JTCC migration strategy for reducing the number of required system interfaces, ensure adequate funds are available, integrate systems and programs, ensure systems continuity, integrate ITV with TAV, develop a theater transportation system, ensure the availability of adequate communications, and implement a standard tagging technology.

CHAPTER 3

Operating Concepts

INTRODUCTION

The DoD's operating concept for ITV is summarized in Figure 3-1. The basic premise of this operating concept is that GTN is the central ITV data base for all Defense unit and non-unit cargo and personnel moving from origin to destination. As such, the ITV module of GTN will need to receive information from 19 TCC, Military Service, and DLA systems (this number may change as DoD completes the system migration strategy).

In presenting the operating concept, Defense transportation is divided into six functional areas: unit cargo, non-unit cargo, personal property, unit personnel, non-unit personnel, and medical patients. Non-unit cargo has two components: CONUS origin to POD movements and POD to theater destination movements. Each area also addresses retrograde shipments and redeployments, where appropriate. For each functional area, ongoing initiatives that contribute to ITV, unique requirements, and detailed descriptions of the recommended [illegible] operating concept are also presented.

Appendix C provides implementation plans for each of the operating concepts presented in this chapter.

CARGO – UNIT MOVEMENTS

Background

During three combat deployments (Urgent Fury, Just Cause, and Desert Shield), the status and timing of unit deployments attracted much high-level interest. Although JOPES was designed to provide such information, it was not available during Urgent Fury; it was purposely not used during Just Cause; and it was used with great difficulty during Desert Shield and, even then, only after the deployment of units was well underway. In each of those deployments, the information necessary to keep key senior military officials informed was provided in patchwork fashion from limited command and control systems and through messages, facsimiles, and phone calls. The DoD also did not have a central repository of movement information that could provide accurate and current visibility information on deploying unit cargo.[1]

[1] Throughout this report, the terms unit cargo and unit equipment are synonymous.

Ongoing Initiatives

The Military Services have developed a variety of information requirements for deploying units (and their cargo). To assist in developing an automated capability to track unit deployments, the Joint Staff published "Requirement for the Transportation Coordinators Automated Information for Movements System," SM-3-87, January 1987. That document requires every Military Service to develop the capability for tracking units from their home stations to POEs. In response to that requirement, the Military Services developed the following systems: Army – TC ACCIS; Marine Corps – TC AIMS; and Air Force – CMOS. The Navy did not develop a separate system because it planned to adopt one of the other Military Service systems.

The Army is also developing two systems that will assist in the tracking of unit movements in-theater: DAMMS-R and STACCS.

In addition to the TC AIMS systems, MTMC, which operates military seaports throughout the world, uses several automated systems to process unit cargo movements through its seaports. Those systems include the Automated System for Processing Unit Requirements (ASPUR); Terminal Management System (TERMS); and Department of the Army Standard Port System – Enhanced (DASPS-E).

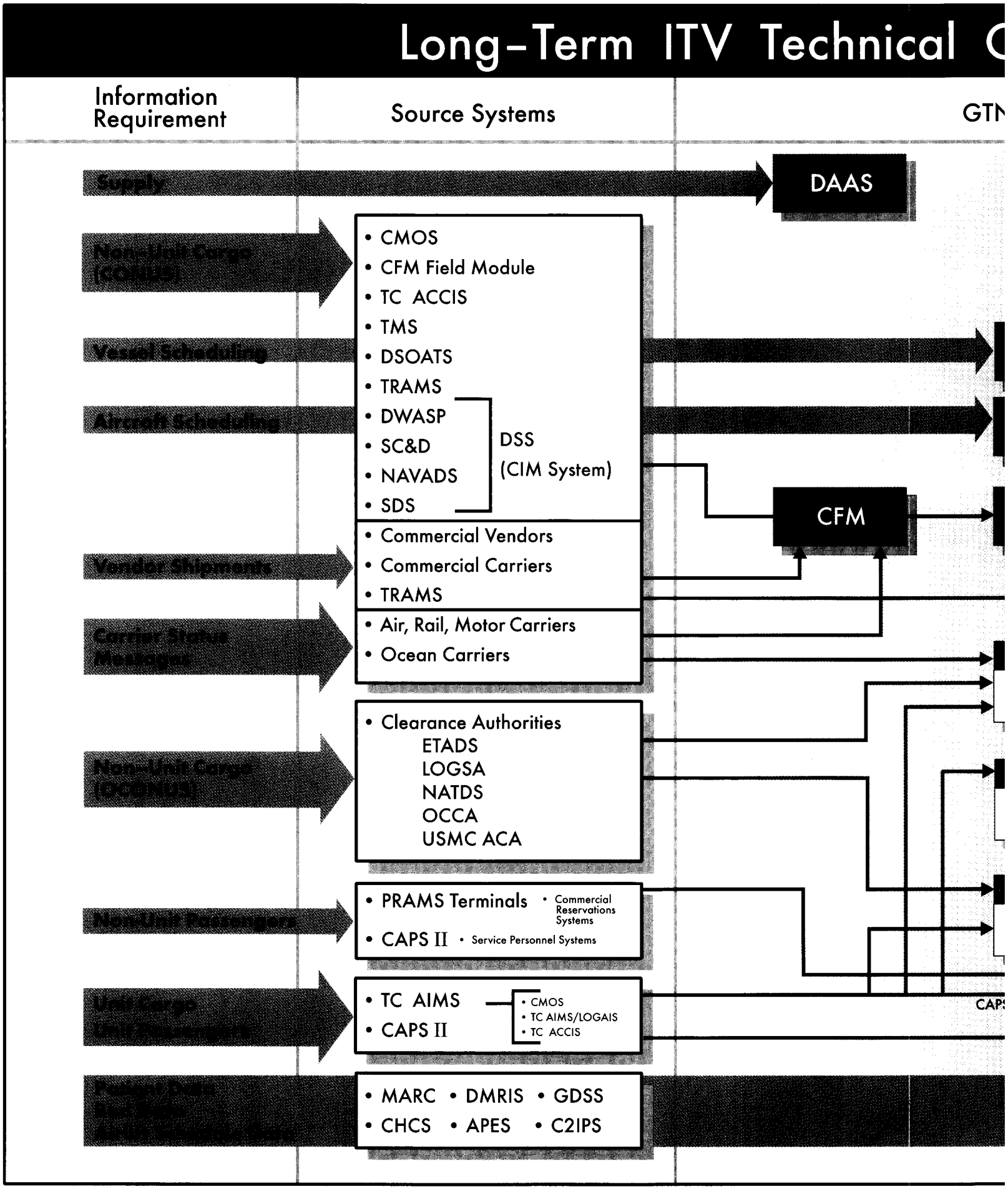
MTMC plans to replace ASPUR with the Integrated Booking System (IBS), and TERMS and DASPS-E with WPS. The WPS is currently installed at locations in Europe and the Pacific. The WPS has the capability for deploying to remote locations and providing manifest data.

AMC supports its movement of unit cargo with the Consolidated Aerial Port System II (CAPS II). That system, which is currently being fielded at AMC's aerial ports, can be deployed to remote locations. It will also interface with CMOS so that manifest information captured at the source does not need to be manually reentered into other systems.

In addition to these systems, USTRANSCOM is developing GTN as a command and control information system to support its mission of worldwide transportation management.

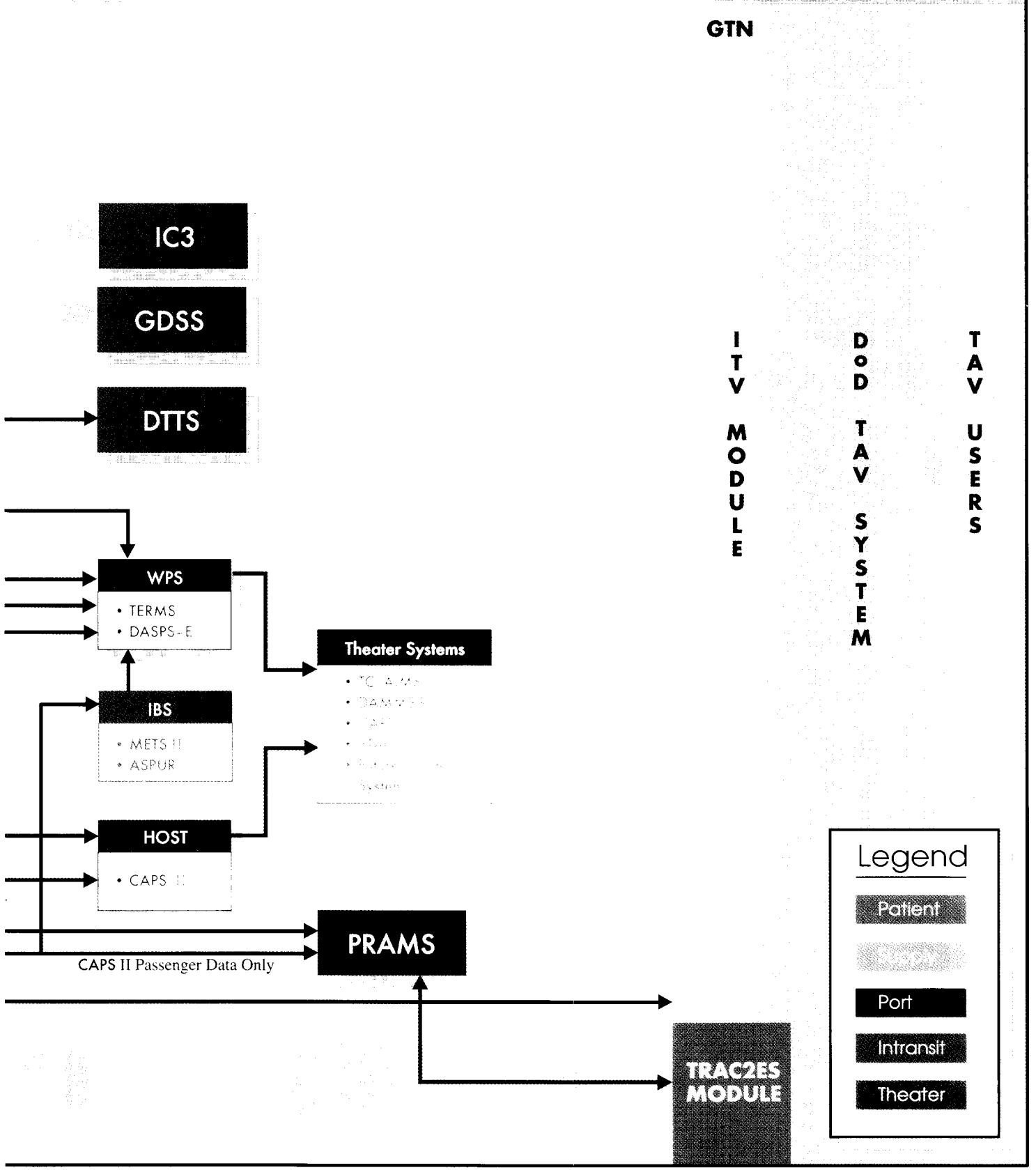
Requirements

Various DoD Components need information on unit cargo movement for many reasons. The TCCs need information to determine workload and schedule lift assets. CINCs and other commanders need to know the status of unit deployments relative to closure schedules so they can make a variety of tactical and support decisions.


Long-Term ITV Technical C
Information Requirement
Source Systems
GTN
Supply
DAAS
Non-Unit Cargo (CONUS)
• CMOS
• CFM Field Module
• TC ACCIS
• TMS
• DSOATS
• TRAMS
• DWASP
• SC&D
• NAVADS
• SDS
DSS (CIM System)
Vessel Scheduling
Aircraft Scheduling
CFM
Vendor Shipments
• Commercial Vendors
• Commercial Carriers
• TRAMS
Carrier Status Messages
• Air, Rail, Motor Carriers
• Ocean Carriers
Non-Unit Cargo (OCONUS)
• Clearance Authorities
ETADS
LOGSA
NATDS
OCCA
USMC ACA
Non-Unit Passengers
• PRAMS Terminals • Commercial Reservations Systems
• CAPS II • Service Personnel Systems
Unit Cargo
Unit Passengers
• TC AIMS
• CAPS II
• CMOS
• TC AIMS/LOGAIS
• TC ACCIS
CAPS
• MARC • DMRIS • GDSS
• CHCS • APES • C2IPS

cal Operating Scenario

GTN Interface Systems



As unit cargo moves through each leg of a deployment, its status and location must be known. In addition to unit cargo in a movement status, ITV information must also be available on Marine Corps unit cargo stored on amphibious and maritime pre-positioned ships, and on Army unit cargo aboard afloat pre-positioned ships, even when the ships are not in common-user status. However, the current ITV initiatives do not capture any information on unit cargo stored aboard pre-positioned and amphibious ships. This shortcoming needs to be corrected.

Action: OSD and the Joint Staff, in coordination with the Military Services, define the ITV requirements for Army and Marine Corps unit cargo stored aboard afloat pre-positioned and amphibious ships.

All unit cargo moving through the DTS must adhere to MILSTAMP and DTMR requirements. One of the tenets of the ITV initiative is that all shipment information should be captured at the source and then updated at each node throughout the move. When the Military Services operate their own POEs separately from the TCCs, their TC AIMS must produce a MILSTAMP compliant manifest and movement data and then pass that information to GTN. Since the TC AIMSs are the first link in the deployment chain, they must be able to

- prepare a military standard shipping label Department of Defense (DD) Form 1387 in accordance with MILSTAMP instructions; the shipping label should include a bar-coded TCN; consignee's DoD activity address code (DoDAAC) and address in clear text; transportation account code (TAC); and piece number;

- prepare and transmit a TCMD; DD Form 1384; and hazardous cargo label (DD Form 1387-2) following MILSTAMP instructions; and GBLs and CBLs, following DTMR instructions; and

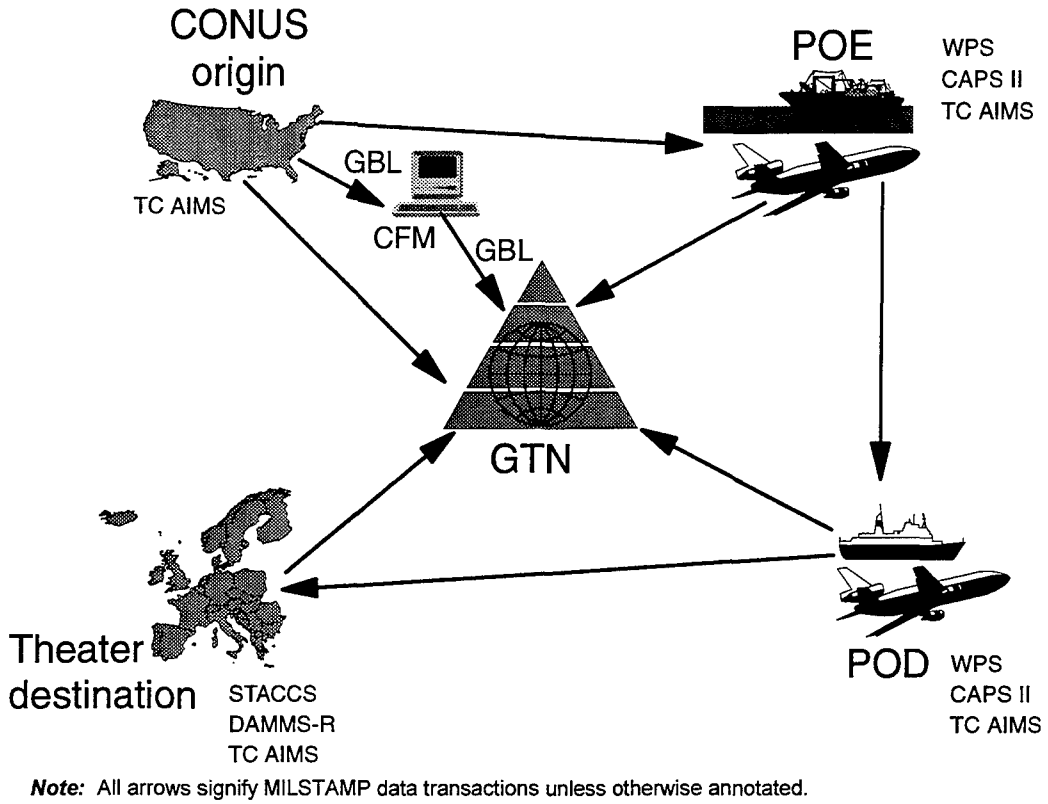
- transmit TCMD, GBL, and CBL information electronically to appropriate TCC systems and GTN using ASC X12 858 Transaction Sets.

Action: Military Services, in consultation with USTRANSCOM, upgrade their TC AIMSs to accommodate preparation of TCMD, GBL, CBL, bar-coded shipping labels, and other MILSTAMP and DTMR documentation, and develop the capability to transmit that data using the ASC X12 858 format. The TCCs and the GTN PMO upgrade their systems to accept ASC X12 858 data.

Operating Concept

Figure 3-2 depicts the operating concept for the information flow of unit cargo movement from origin to destination. It shows unit cargo information for organic movements being passed from TC AIMS directly to GTN and the POE. For commercial unit cargo movements, information being passed from TC AIMS to CFM and then to GTN. As the movement information passes from the POE to

the POD, or from the POD to the theater destination, the systems at the POEs and PODs will update GTN.



Note: All arrows signify MILSTAMP data transactions unless otherwise annotated.

Figure 3-2.
ITV Information Flow for Unit Cargo Movement (Deployment)

The long-term focus for obtaining unit movement ITV information is on simplicity, particularly on minimizing the number of interfaces with other systems. Until the JTCC recommends and OSD approves a migratory TC AIMS, however, the Military Services' TC AIMSs remain the primary transportation systems for capturing unit deployment source data.

To ensure that unit cargo ITV data are standardized from origin to destination, the Military Services need to document all movements following MILSTAMP and DTMR instructions. However, those instructions need to be updated and integrated with other regulations and procedures.

Action: USTRANSCOM consolidate, simplify, and standardize all Defense transportation regulations, instructions, and procedures, including those in MILSTAMP and the DTMR, into a single document.

Ground Movements From Origin Site

When commercial ground transportation is used to move unit equipment from origin to a POE, TC AIMS documents the move, prepares the GBL, and passes the information to CFM. In turn, CFM provides the necessary movement information to GTN.

When organic military ground transportation is used to move unit equipment from an origin to a POE, the TC AIMS will pass the movement information directly to GTN.

To facilitate movement planning, TC AIMS passes advance movement information through the shipper service control offices to the POE operating systems. However, some of those interfaces do not exist.

Action: USTRANSCOM and the Military Services ensure that TC AIMS has the capability to provide the necessary information to CFM and GTN.

Air Deployments

In keeping with the objective of standardizing data and system interfaces, JTCC needs to analyze aerial port operating systems during the migration strategy implementation. As a result, CAPS II and modules of TC AIMS that are used for aerial port operations, whether strategic or remote, could be merged into one aerial port of embarkation/debarkation (APOE/APOD) operating system. That system would pass ITV information to GTN.

Action: JTCC recommend through the Joint Staff, and DUSD(L) approve, a migration strategy for aerial port operating systems that will interface with GTN and theater transportation systems, and be deployable to remote locations.

Sea Deployments

As with air deployments of unit cargo, seaports also need only one operating system. Since no single system currently exists, JTCC needs to evaluate the potential for merging the modules of TC AIMS that have seaport operating capability and WPS into one seaport operating system. When unit movement occurs from the deployment site, TC AIMS would provide advance movement information, through the shipper service control office, to IBS, WPS, and GTN. Upon unit arrival at the seaport of embarkation (SPOE), and subsequent movement from the SPOE, the seaport operating system would update GTN.

Action: JTCC recommend through the Joint Staff, and DUSD(L) approve, a standard seaport operating system that will interface with GTN and in-theater transportation systems and be deployable to remote locations.

Theater POD Forward Movements

When unit cargo arrives at a POD, the port's operating system needs to pass arrival information to GTN. It also needs to interface with an in-theater transportation system to support the onward movement of that cargo to its ultimate destination. When the unit cargo arrives at its destination, the in-theater system passes the appropriate ITV information to GTN. Although the in-theater system does not currently exist, STACCS has the capability to track Army units from POD forward to destination. That system along with DAMMS-R, TC AIMS, and CAPS II could be the basis for a theater transportation system.

Action: OSD, in coordination with the Joint Staff, designate USTRANSCOM as the executive agent to manage the development of a theater transportation system.

Unit Redeployment and Intratheater Movements

For unit redeployment operations, the new theater transportation system would initiate the source movement data by capturing information for unit movements from both commercial and organic systems and then pass the information to GTN and the port system. When the unit cargo arrives at the theater POE/POD, the port system would update the movement information and pass it to GTN. (See Figure 3-3.) This concept essentially follows the CONUS deployment process except in reverse order.

For intratheater movements, the information flow would essentially be the same as for redeployments (again, not all movements would involve port systems).

Action: USTRANSCOM review joint and Military Service doctrine and operating publications for changes that may be required to implement the operating concept.

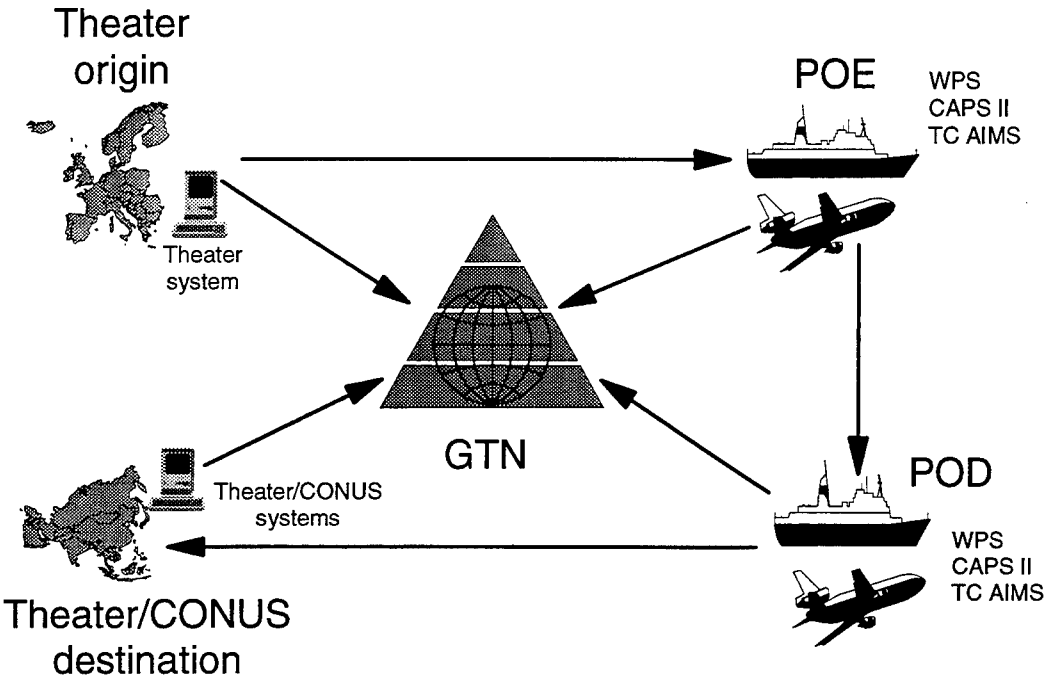
Cargo – Non-Unit Movements (Origin to POD)

Background

Non-unit cargo includes all sustainment materiel (except for supplies and equipment accompanying a unit during deployment, and bulk POL[2]) in CONUS, pre-positioned overseas, or afloat. Within CONUS, DoD documents the movement of non-unit cargo in several ways. Most ITOs use automated systems to support the movement of non-unit cargo. Those systems could provide the necessary ITV over non-unit cargo when shipped from CONUS installations to a CONUS destination, POE, or POD. The sources for that information include TCMD, GBL, CBL, and small parcel manifest documents; and shipment

[2] Petroleum, oil, and lubricants.

information from vendors, postal shipment data, ordnance tracking information, and shipment status information from carriers.



Note: All arrows signify MILSTAMP data transactions.

Figure 3-3.
ITV Information Flow for Unit Cargo Movement (Redeployment)

This section presents an ITV concept of operations for capturing various types of source data for GTN. It also describes ongoing and planned initiatives that affect ITV, identifies unique non-unit cargo ITV requirements, proposes an ITV operating concept, and discusses changes to current policies and procedures where they inhibit ITV.

MILSTAMP

Ongoing Initiatives

Although Version 2.1 of the GTN prototype already captures TCMD data for all air shipments, it only provides visibility over shipments from the POE to POD. Version 2.2 adds similar visibility for surface shipments. AMC estimates that DoD Components typically generate more than 600,000 air shipments each year, while MTMC estimates a similar number for surface shipments. In order to extend ITV capability from the source of the shipment to the POE, MILSTAMP must be extensively modified.

Requirements

In order to track TCMD shipments from a CONUS source to a port, GTN must capture various domestic shipment information, such as carrier name, pick-up date and time, required delivery date, origin point, and destination. MILSTAMP currently does not require the TCMD to include those data items. However, use of the ASC X12 858 Transaction Set in lieu of the TCMD would allow the DoD to collect that information. It would also simplify the maintenance of MILSTAMP data through the increased flexibility offered by variable length EDI records. Furthermore, the MODELS (Modernization of the Defense Logistics Systems) program supports replacing the TCMD with the ASC X12 858 Transaction Set.

Action: USTRANSCOM, Defense Logistics Management Standards Office (DLMSO), and the TCCs map MILSTAMP data to the ASC X12 858 Transaction Set.

The incorporation of domestic shipment information into MILSTAMP and the subsequent migration to the ASC X12 858 Transaction Set is referred to as enhancing TCMD data. This concept is not new – the Air Force Materiel Command has already successfully demonstrated the use of the ASC X12 858 Transaction Set in lieu of MILSTAMP data. Appendix C presents the implementation plan for enhancing TCMD data. That plan includes schedules for developing improved interfaces between GTN and the TCC systems, and for modifying MILSTAMP source data systems to satisfy the additional data requirements and ensure timely transmissions.

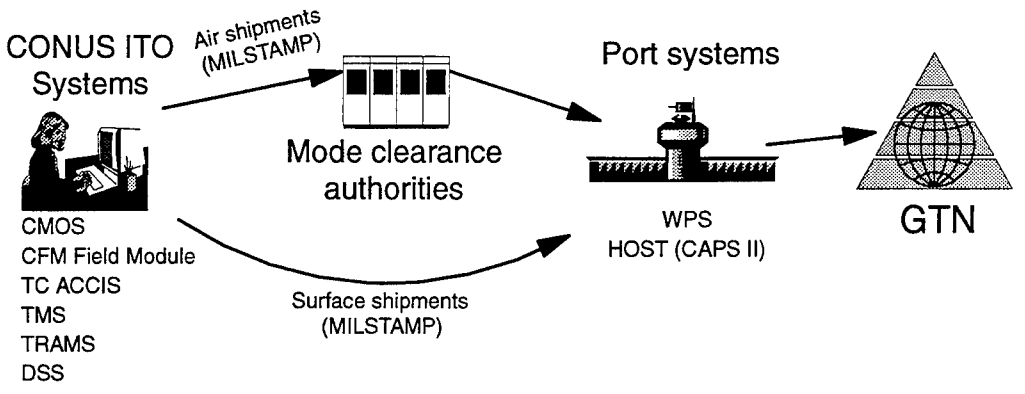
Operating Concept

Except for the enhanced TCMD data, the operating concept for using the GTN prototype to capture TCMD data meets the DoD's ITV requirements. (Figure 3-4 provides a schematic of that operating concept.) DAAS would provide regular transmissions of MILSTRIP AS data to GTN. (The AS transaction links the requisition number to the TCN.) Furthermore, GTN would receive enhanced TCMD data from AMC's HOST system for air shipments and from MTMC's WPS for surface shipments.

Action: GTN PMO and MTMC enhance the WPS and HOST interfaces with GTN to include the additional CONUS movement data requirements.

A major shortcoming with MILSTAMP data (as well as with other DoD source data) is the absence of timely and accurate data transmissions. Without advance information, the inclusion of domestic shipment information in MILSTAMP does little to enhance ITV between the origin and port. In April 1993, AMC estimated that its aerial ports received between 42 and 45 percent of all ATCMD data before the associated shipment arrived. MTMC acknowledges a similar problem with surface shipments. Subsequent efforts of a USTRANSCOM working group traced those problems to lack of compliance by

commercial vendors, delays at clearance authorities, and batch processing at MTMC ports. Until those and other problems are resolved, the DoD will not be able to develop a reliable ITV system.



Note: TMS = Transportation Management System; DSS = Distribution Standard System.

Figure 3-4.
MILSTAMP (ATCMD) Data — Operating Concept

GBL Data

Ongoing Initiatives

In February 1994, DoD, through its DTEDI program, began replacing the GBL and other routine freight and personal property payment documents with electronic transactions. It eventually plans to install EDI capability at more than 160 of its largest CONUS shipping activities as well as at DFAS-IN and MTMC.

While the initial focus of the DTEDI program is to support the electronic audit and payment of freight and personal property shipments, the associated EDI infrastructure will enable the DoD to capture much needed CONUS source data for ITV. The DoD currently issues approximately 1.3 million freight GBLs each year, with more than 80 percent of those GBLs generated at shipping activities included in the DTEDI program. MTMC's CFM system, which implemented the capability to electronically receive and process GBL information from select DLA depots and all operational CFM Field Module sites in February 1994, will capture all GBL information from DTEDI shipping activities. Overall, the Military Services and DLA have initiated EDI programs for at least 10 major transportation source data systems that will ultimately be fielded at more than 600 shipping activities.

Requirements

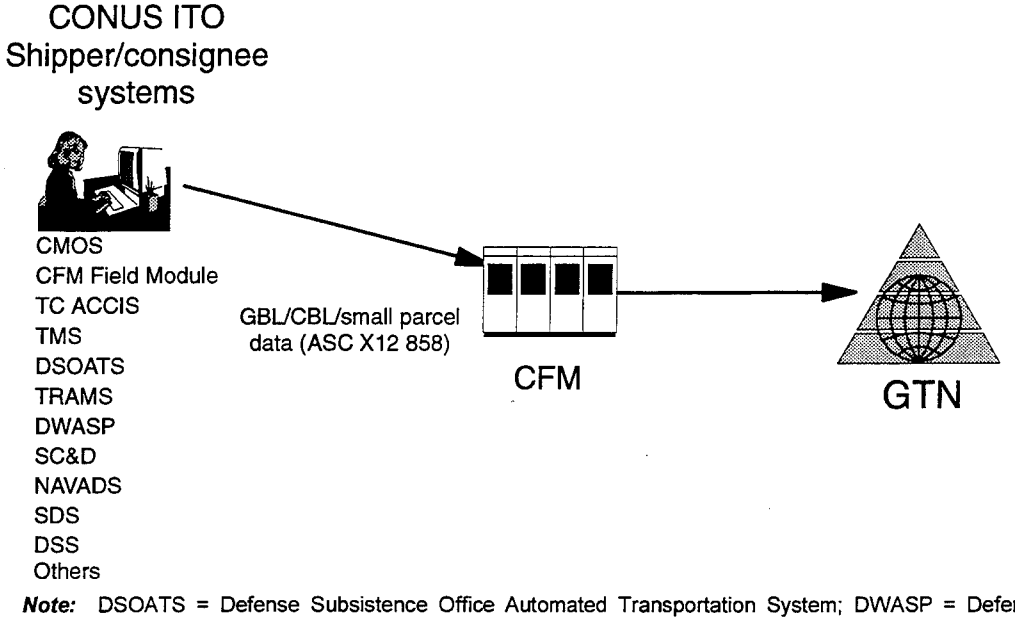
The ITV requirements for GBL information are essentially the same as for MILSTAMP data. The CFM system must capture every TCN in a shipment,

along with a variety of general shipment information, such as shipper, commercial carrier, and destination. The detailed data requirements for electronic GBL information are described in *Electronic Operating Instructions for Defense Shipping Activities*, published by MTMC, May 1994.

In addition to those requirements, the Air Force, as part of its two-level maintenance program, requires nearly real-time access to GBL information from GTN. In order to satisfy this requirement, GTN needs to receive GBL information from the CFM system as soon as it receives that information from the shipping activity.

Operating Concept

Figure 3-5 shows the operating concept for providing GBL information to GTN. This concept relies extensively on the existing EDI relationships between Defense shipping activities and the CFM system.



Note: DSOATS = Defense Subsistence Office Automated Transportation System; DWASP = Defense Warehousing and Shipping Procedures; SC&D = Stock Control and Distribution; NAVADS = Navy Automated Transportation and Documentation System.

Figure 3-5.
GBL/CBL/Small Parcel Data — Operating Concept

The two major actions that remain before the DoD can achieve adequate visibility over GBL shipments are (1) develop an interface between the CFM system and GTN and (2) expand the implementation of EDI capability at Defense shipping activities. The CFM system, however, will only be able to provide GBL data to GTN for shipments originating at EDI-capable shipping activities. Even though each system in Figure 3-5 is in the process of either planning, developing,

or fielding an EDI capability, only a few Defense shipping activities are capable of transmitting GBL information electronically. Furthermore, it will take years before the CFM system has the capability to capture all GBL information in a timely manner.

The lack of resources available to modify legacy systems continues to slow EDI implementation at Defense shipping activities. In addition, DLA depots, which account for more than 70 percent of all GBL shipments, are in the process of fielding the Distribution Standard System (DSS) to replace some legacy systems. DSS needs to have an EDI capability in order to maintain the functionality of the DTEDI program.

Action: DLA ensure that DSS is fielded with an EDI capability so that its depots retain their ability to transmit GBL information.

CBL/Small Parcel Data

Ongoing Initiatives

Little standardization and automation currently exists to support the electronic preparation of CBLs and small parcel manifests. Defense shipping activities and commercial carriers use those documents when a shipment does not meet the DTMR thresholds requiring use of a GBL. The CBL is a non-standard document prepared by either the Defense shipping activity or the carrier. It provides the carrier with shipment information and enables the carrier to generate a waybill and invoice. Many of the small parcel carriers, such as FedEx and UPS, use bar-coded labels, which are similar to a CBL. Even though ITOs initiate more than 800,000 CBL shipments and between 2 million and 4 million small parcel shipments each year, DoD has no central data base for CBL and small parcel information. Unlike GBL shipments, Defense shipping activities pay the cost of moving shipments documented with either the CBL or small parcel manifest. Finally, DFAS-IN plans to centralize the payment of all CBLs at a single payment center, although DoD has not yet established policies or milestones for developing that capability.

Requirements

Ideally, the DoD should have few differences among various types of shipment documentation, which means that the requirements for the GBL should also apply to the CBL. However, because of the lack of automation and standardization in the preparation of CBLs and small parcel manifests, DoD needs to map the CBL and small parcel data requirements to the ASC X12 858 Transaction Set and develop a data convention for that application.

Operating Concept

The operating concept for processing CBL and small parcel information is identical to that for GBLs (see Figure 3-5). Because this operating concept would establish an infrastructure for capturing CBL information, the CBL requirements (including the Air Force's near-real-time processing requirement) and implementation schedule depend upon the progress of the DTEDI program. However, before the DoD can have adequate visibility over shipments moving under CBLs, it must take several actions.

Action 1: USTRANSCOM, in coordination with the Military Services and DLA, develop implementation guidelines for applying the ASC X12 858 Transaction Set to CBLs, using the same data conventions as those used for the GBL, wherever possible.

Action 2: MTMC CFM Program Office develop the capability to receive and process CBL information from Defense shipping activities.

Action 3: Military Services and DLA develop the capability to electronically transmit CBL data from their shipping activities to the CFM system. (However, few shipping activities have the capability to support the electronic preparation of CBLs or small parcel manifests. Since DSS will process more than 70 percent of all CBL shipments, its enhancement is key to the successful implementation of the operating concept.)

Action 4: DoD change its policies and procedures to centralize the payment process. CBL payments to commercial carriers are currently paid with local operations and maintenance funds, which are not available to DFAS-IN. DFAS-IN needs to develop a schedule for centralizing the payment process.

The implementation schedule for these actions is shown in Appendix C.

Vendor Shipments

Ongoing Initiatives

Recent DoD data shows that more than one-third of all Defense shipments originate from commercial vendors. (In Desert Shield/Storm, 36 percent of all resupply shipments came directly from commercial vendors.) This situation suggests that the DoD needs to capture shipment information from vendors before it can have an effective ITV capability.

The capture of vendor-generated shipment information will become increasingly important to the DoD as its forces and inventories shrink. The DoD will increase its use of transportation to move limited resources directly from commercial plants to DoD users during peace, contingencies, or war. Yet, those vendor shipments pose one of the greatest challenges to the DoD's ITV initiative, primarily because the DoD has little control over its commercial vendors,

particularly for free-on-board (FOB) destination shipments. (FOB origin shipments are subject to the same MILSTAMP and DTMR policies and regulations that govern shipments from Defense shipping activities.) In addition, whether the shipments are FOB origin or destination, not all vendors comply with the DoD's requirement to use standard data, such as requisition numbers and TCNs. Finally, since the DoD does not own the materiel moving FOB destination until it is received at a Defense activity, the vendor has little incentive to provide timely and accurate shipment information.

A few DoD programs have developed some limited ITV capability for vendor shipments. The Air Force and DLA are testing a system for shipment tracking and customs clearance in Germany. The operating concept requires premium transportation air carriers, such as FedEx, UPS, and Emery Worldwide, to transmit ASC X12 858 Transaction Sets to CMOS, whether the shipment originates at a Defense shipping activity or a commercial vendor. This approach will enable the Air Force and DLA to begin the customs clearance process before shipments arrive at the APOD.

Requirements

The GTN needs the same visibility over all vendor-originated shipments (both FOB origin and destination) that it plans for those originating at Defense shipping activities. That visibility includes tracking a shipment by either requisition number, NSN, TCN, or shipment identification number.

Action: DoD direct that the ASC X12 858 Transaction Set is the principle means for communicating vendor shipment information.

Operating Concept

As Figure 3-6 shows, the DoD has at least three alternative operating concepts for capturing vendor-generated shipment information.

In the first alternative, the vendor transmits shipment information in ASC X12 858 format to the appropriate TCC system: HOST for air shipments moving to an OCONUS destination, WPS for surface shipments moving to an OCONUS destination, and the CFM system for all other shipments. The TCC system then passes that data to GTN. This alternative would require DoD to establish an EDI link with every commercial vendor. While many commercial vendors use EDI in other business applications, they have little incentive to provide the DoD with information on FOB destination shipments. In addition, hundreds of other commercial vendors, typically small, use little automation (including EDI) in support of their daily business activities. Finally, the vendor will likely charge the DoD more for this added service.

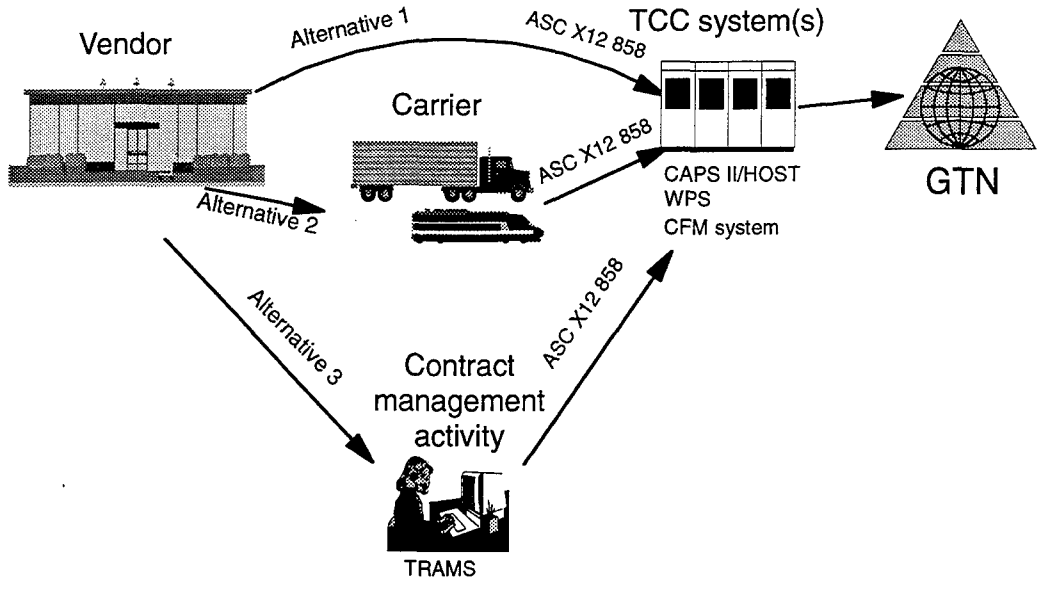


Figure 3-6.
Vendor Data — Alternative Operating Concepts

In the second alternative, the vendor, as part of normal business operations, provides the commercial carrier with electronic or hard-copy shipment information. The commercial carrier transmits the shipment information, using the ASC X12 858 Transaction Set, to the appropriate TCC system (HOST, WPS, or CFM), which, in turn, passes the information to GTN. This alternative would require the DoD to establish an EDI link with every commercial carrier. However, like commercial vendors, many carriers have neither an EDI capability nor an incentive to provide shipment information electronically to the DoD.

Under the third alternative, the DoD modifies its MILSCAP procurement policies and procedures to require all vendors to ship Defense assets FOB origin. This action would ensure that all vendor shipments are under DoD management from origin to destination. However, the additional burden of managing document preparation, data standardization, and procedural compliance may make this alternative too costly, which limits its application.

Because of the complexities associated with each of the above alternatives, the DoD will probably not have complete visibility over all vendor shipments in the foreseeable future. Nonetheless, the DoD could use some features of the above alternatives to increase the number of vendor shipments tracked.

Alternatives 1 and 2 could be used with all vendors and carriers that have the capability to provide the required information electronically. (The Air Force has already implemented the second alternative for German customs clearance.) In addition, the DoD could adopt the third alternative for selected high-priority assets by requiring the DoD contract management activity to specify FOB origin

prior to procurement. This action would minimize the additional requirements on the contract management activity.

Action: DUSD(L) appoint DLA as the lead agent for capturing and integrating vendor shipment data into GTN. DLA, in conjunction with USTRANSCOM and the Military Services, should then assess the three alternatives and select the best approach. Whichever approach is selected, DLA, in coordination with USTRANSCOM, should revise transportation and procurement regulations, policies, and procedures (such as the Federal Acquisition Regulation and MILSCAP) to make commercial industry accountable for providing timely and accurate data through the ASC X12 858 Transaction Set for all Defense assets as they move from vendor facility to Defense activity.

This overlap with the procurement community emphasizes the need for a seamless integration of all TAV requirements for vendor shipments. For this reason, the TAV JTF will recommend a course of action that considers not only intransit, but inprocess requirements. As a consequence, DLA will need to work closely with the TAV JTF to ensure that the approach used to capture vendor ITV data is consistent with the TAV JTF's recommendations. DLA, as the lead agent, will need to assess the feasibility of each alternative for capturing vendor information; identify the conditions where the alternatives increase ITV capability; and identify the regulations, policies, and procedures that need modification to ensure visibility over vendor shipments. Appendix C provides an implementation schedule for moving forward with these ITV actions.

Postal Data

Ongoing Initiatives

The U. S. Postal Service (USPS) moves a large number of small parcels for Defense shipping activities, but the exact number is impossible to estimate because they are processed manually with little documentation.

The USPS has minimal capability to track DoD shipments. However, it is developing a new system, Military International Dispatch and Accountability System (MIDAS), to provide internal control and accountability over bags of mail moving from CONUS gateways to overseas locations. That system will enable the USPS to track bags of mail to overseas PODs.

In addition, the USPS and Military Postal Service Agency (MPSA) are piloting a program called the Military Origin-Destination Information System (MODIS). MODIS will use bar-code technology to scan MIDAS flight tags at selected military postal facilities within Germany and capture transit time data for periodic management report generation. Scanning will occur at the initial point-of-entry processing hub (the Aerial Mail Terminal at the Frankfurt International Airport) and at the destination military post office.

The only other USPS program that may have value to the DoD's ITV program is Express Mail, but it offers only limited telephonic tracking capability when shipping activities request return receipts.

Requirements

The visibility requirements for a DoD shipment moving through the postal system should be the same as for any other DoD shipment. However, in light of the current and planned capabilities of the USPS, the DoD is not likely to have adequate visibility over mail shipments in the near future.

Most mail shipments, however, have a lower ITV tracking priority than other DoD shipments. For instance, an F-16 avionics black box moving via premium transportation in support of the Air Force's two-level maintenance program requires more effective ITV than a lower priority mail shipment. The DoD's mode selection process and delivery standards automatically designate shipments for movement by low-cost carriers, such as the USPS, when the requisitioner does not specify a high-priority delivery standard. As a consequence, DoD shipping activities do not send many shipments that require high levels of visibility through the mail.

Nonetheless, the mail system may be the only available service provider within the theater of operations, which is the situation in some remote theaters. Even if mail shipments are generally of lower priority than other shipments, exceptions will always exist.

Finally, the Military Services require the capability to track mail bags from CONUS gateways to overseas destinations (particularly Naval vessels). The Navy's objective is to ensure the availability of regular shipboard mail (letters and parcels) for morale purposes.

Operating Concept

The operating concept for capturing postal shipment information calls for an interface between MIDAS and GTN. MIDAS would provide the number and destination of all DoD mail bags using the ASC X12 858 Transaction Set. GTN would use those data to provide destinations with a variety of information, including the number of mail bags, weight, and expected arrival date. An alternative operating concept would rely on an interface between MIDAS and a selected TCC system, which, in turn, would provide GTN with postal data.

The high cost of developing an interface between MIDAS and GTN reduces the short-term feasibility of attaining ITV of mail shipments. Until the USPS develops systems that can provide the DoD with requisition numbers, TCNs, or NSNs of material moving through the U.S. mail, the DoD will not have visibility over that materiel.

Action: DoD modify its mode selection procedures to ensure that items requiring ITV are not shipped through the USPS.

Ordnance Data

Ongoing Initiatives

The DTTS currently tracks more than 55,000 high-security shipments annually throughout CONUS using satellite and motor surveillance procedures. Since those shipments are documented using the GBL, the CFM system will capture data for auditing, payment, and ITV purposes as described in the GBL operating concept.

The DTTS receives GBL information from Defense ordnance shippers immediately after carrier pickup, through either EDI, remote terminal, telephone, or facsimile. It then creates a shipment-in-process record. At regular intervals, the carrier's tractor transmits a message to a satellite, which updates DTTS files on the location of the shipment (a small percentage of shipments are still tracked through regular driver telephone messages).

Requirements

DTTS must track all security shipments from the time the carrier leaves the plant or installation until delivery. In addition, GTN requires DTTS to respond to inquiries about the location of all security shipments at any time. This may require an on-line inquiry capability into DTTS for shipment position and arrival data.

Operating Concept

As shown in Figure 3-7, Defense ordnance shipping activities with EDI capability would provide the CFM system with shipment information on all security shipments when the carrier takes possession of the shipment. The CFM system immediately passes that information to DTTS via a dedicated line. Ordnance shipping activities that lack an EDI capability use facsimile, telephone, or remote terminals to transmit shipment information to DTTS. Nonetheless, some of the shipment information that GTN requires for ITV is not captured. For example, DTTS records only the lead TCN and the most hazardous commodity, while GTN requires all TCNs and commodity descriptions in every shipment.

Action: DTTS Program Office enhance the system's capabilities to capture all TCN and hazardous commodity information for shipments from non-EDI-capable shipping activities, and explore expansion of DTTS to all modes of transportation and OCONUS.

The CFM system provides GTN with shipment information from EDI-capable Defense ordnance shipping activities, as in the operating concept for capturing GBL and CBL information. When an inquiry is made about a security shipment, GTN may require the capability to receive current shipment location status from DTTS. One way to satisfy this requirement would be for GTN to initiate an on-line inquiry into DTTS, which would then respond with the latest position status data. This approach would provide access to detailed DTTS tracking data without requiring the transfer of high volume hourly shipment position reports from DTTS to GTN.

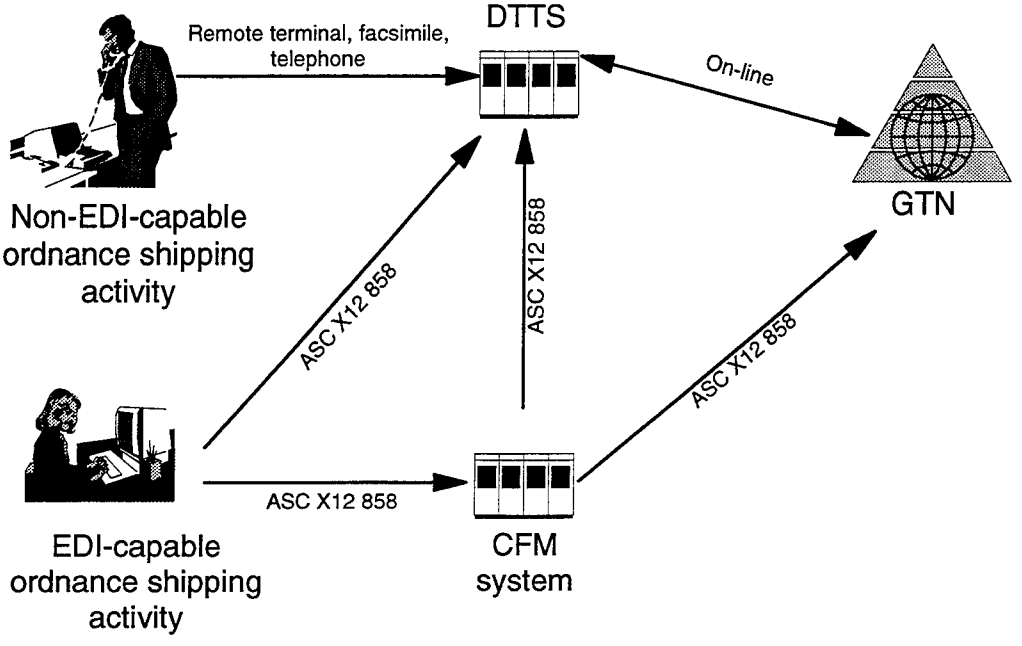


Figure 3-7.
Ordnance Shipments — Operating Concept

Three activities are key to implementing this operating concept: expanding EDI capability to all ordnance shipping activities, developing an on-line interface between DTTS and GTN, and enhancing DTTS to capture all ITV data requirements. Detailed implementation plans for these three activities are found in Appendix C. While more than 80 percent of ordnance shipments originate from ITOs that are scheduled to have EDI capability, several years will elapse before all Defense ordnance shipping activities are EDI capable. Therefore, the CFM system will be unable to update GTN with all required information on ordnance shipments for the foreseeable future.

Carrier Status Data

Ongoing Initiatives

The Air Force has implemented an EDI shipment status system involving two small parcel carriers (FedEx and UPS); CMOS; and the Air Force Logistics Information File (AFLIF). CMOS provides the small parcel carriers and AFLIF with shipment information (currently in a proprietary format). The carriers periodically transmit shipment status messages in an ASC X12 214 Transaction Set format to AFLIF, which then reconciles them with the shipment information records.

In addition, AMC has initiated modifications to its category A cargo program to move Army ALOC and Medical Express cargo via commercial carriers to and from the carriers' commercial gateways for delivery to final theater destinations. The carriers provide MILSTAMP compliant data for these shipments directly to the AMC communications gateway where the data can be captured by GTN.

Requirements

Commercial carriers are responsible for providing shipment status messages when any of the following actions occur:

- An ocean shipment is transshipped.
- A change is made in the mode of transportation.
- A carrier passes control of a shipment to another carrier.
- A carrier delivers a shipment.

Although carriers are required to transmit an EDI message whenever any of the above actions occur, they are not required to support inquiries about individual shipments from DoD systems.

Operating Concept

Figure 3-8 shows the ITV operating concept for capturing carrier status messages. Ocean carriers would transmit status messages following the ASC X12 315 Transaction Set format through a commercial EDI VAN to TERMS (or WPS when it becomes operational), which then forwards the status messages to GTN. In a similar manner, rail, motor, and air carriers would transmit the ASC X12 214 Transaction Set through a commercial VAN to the CFM system, which forwards the status messages to GTN. GTN would need to augment its interfaces with TERMS (WPS) and the CFM system to include shipment status data.

In order to implement this operating concept, DoD must ensure that commercial VAN services are available. While the General Services Administration has procured the services of a commercial EDI VAN, that contract expires in September 1995. In addition, DoD must ensure that all or most carriers can support the transmission of EDI status messages; only large carriers have that capability now.

Action: USTRANSCOM ensure that commercial VAN services are available to support EDI status transmissions from commercial carriers, and promote carrier participation in its ITV efforts.

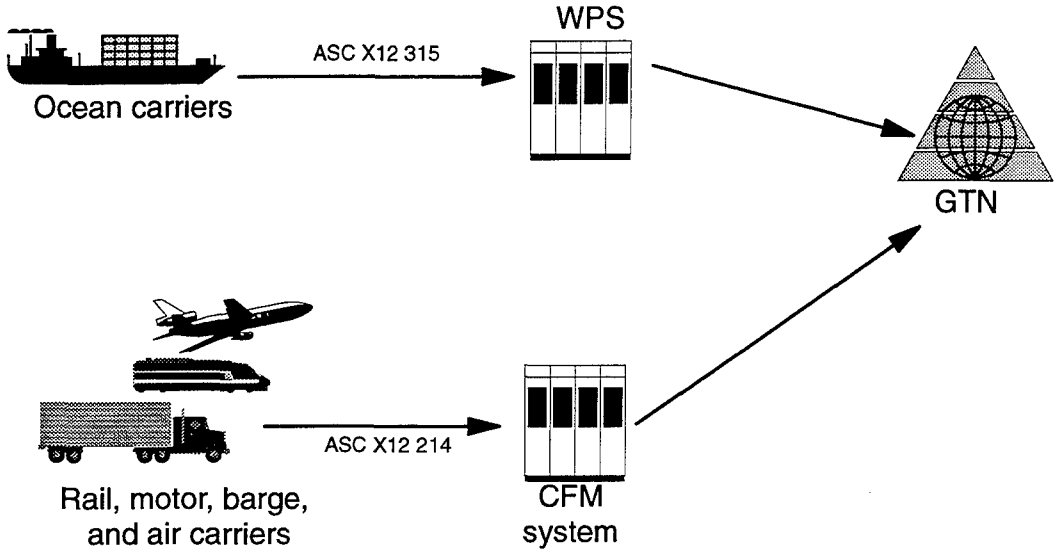


Figure 3-8.
Carrier Status Information — Operating Concept

CARGO — NON-UNIT MOVEMENTS (POD TO DESTINATION)

Background

The in-theater movement of non-unit cargo is the responsibility of the theater CINC. Embedded in that responsibility is the need to maintain ITV of the cargo while it is

- inbound, from a POD to an in-theater destination; or
- outbound (redeployment and retrograde), from an in-theater origin to a theater POE.

This visibility can best be attained by a single theater transportation system that interfaces with the strategic movement systems under which non-unit cargo moves from its origin to a theater point-of-entry. Although that existing system does not exist today, several DoD systems – both in being and under development – can provide some of the information that should be available from such a system.

Although JCS Publication 4-01.3, "Joint Tactics, Techniques and Procedures for Movement Control," January 1994, addresses theater movement control requirements, it does not discuss the ITV implications of movement control. In addition, no single Defense agency or Military Service is attempting to develop a joint theater transportation system that can provide ITV for cargo moving into, within, or out of a theater. Such a system could also provide destination shipment receipt information to GTN and thereby support the overall TAV initiative.

Ongoing Initiatives

The Military Services have placed varying degrees of emphasis on developing an automated in-theater cargo tracking capability. Foremost among those efforts is DAMMS-R, an information system designed to support movement management, transportation operations, and common-user asset control within a theater.

In addition, a number of other systems have differing capabilities to provide ITV of non-unit cargo movements in and out of theaters. Those systems are

- WPS, a MTMC seaport operating system for use at SPOEs and SPODs; it provides cargo manifest, arrival, and departure information;
- CAPS II, an AMC system for use at AMC-controlled APOEs and APODs; it also provides cargo manifest, arrival, and departure information;
- TMS, an EDI-capable Marine Corps system currently fielded both in the CONUS and overseas; it plans and documents freight shipments moving through the DTS;
- CMOS, an EDI-capable Air Force system fielded both in CONUS and overseas; it plans and documents freight shipments (including theater freight warrants) moving through the DTS. It also has a module supporting theater airlift clearance requirements.

Requirements

The DoD's ability to achieve ITV of non-unit cargo from the time it enters a theater until it is delivered to the consignee depends upon several factors. The most critical ITV requirements for non-unit cargo are described below.

As indicated previously, the primary problem with DoD achieving visibility of the in-theater movement of non-unit cargo is that "no one is in charge." In the absence of such leadership, each of the Military Services is pursuing its own needs and establishing its own goals. This situation needs to be corrected.

Action: DUSD(L), in coordination with Joint Staff, designate USTRANSCOM as the executive agent to design, develop, integrate, test, and implement a joint theater transportation system.

The DoD's recent experiences in the Persian Gulf and Somalia underscore the likelihood of future military endeavors in less than mature theaters. Accordingly, system selection or design efforts for a theater transportation system must satisfy movement requirements under a variety of scenarios, rather than focus exclusively on a mature theater environment.

Action: Executive agent ensure that the theater transportation system is exportable worldwide.

The complexity and diversity of both Defense transportation and the commercial transportation industry, which moves much of the DoD's non-unit cargo, dictate the need for a seamless interface between strategic and theater transportation movement systems.

Action: Executive agent ensure that the theater transportation system is integrated with the intertheater transportation systems supporting the ports and GTN.

A seamless interface with strategic systems is possible only if the data elements used by the theater system are common to, and interchangeable with, those in the strategic systems.

Action: Executive agent ensure that the theater transportation system uses the same data elements that are embedded in existing Automated Information Systems.

The majority of non-unit cargo will continue to be containerized and palletized. As a result, large numbers of containers and 463L pallets will enter and be dispersed throughout the theater area of responsibility. A theater movement system provides an ideal vehicle for tracking the cargo moving on containers and pallets.

Action: Executive agent ensure that the container and pallet tracking are integral elements of the theater transportation system.

Operating Concept

The ITV operating concept for moving non-unit cargo from a POD forward to its ultimate destination is similar to the concept for moving unit cargo forward from a POD.

Deployment Concept

Figure 3-9 shows the operating concept for moving non-unit cargo from a theater POD to a final destination.

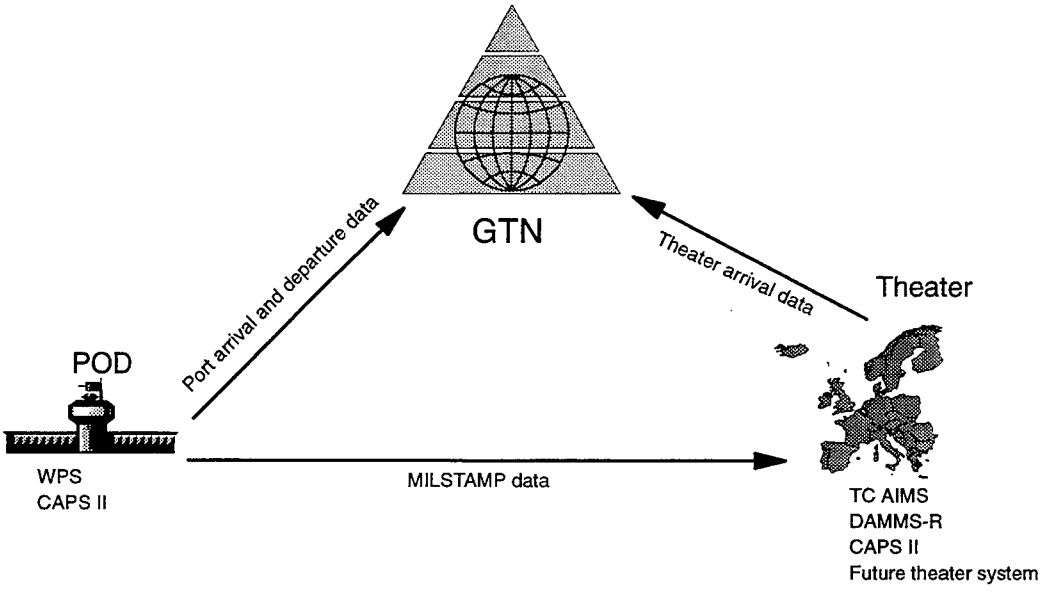


Figure 3-9.
Non-Unit Cargo Movement from POD to Destination — Operating Concept

The POD system would provide transportation data to the theater transportation system. In keeping with the system migration process, all CONUS and overseas surface and aerial ports would use a standard system. The POD system would also transmit non-unit cargo movement data to GTN.

Upon arrival of the non-unit cargo in the theater, the theater transportation system would provide visibility of cargo as it moves from the POD to a theater consignee. The theater transportation system must not only interface with the POD system, it must also provide the in-theater movement and receipt information to GTN.

Retrograde and Intratheater Movements Concept

The concept for moving retrograde cargo from within a theater to a theater POE is shown in Figure 3-3 on page 3-9. (The operating concept is identical for unit and non-unit cargo.) A theater CINC's responsibility for cargo entering the theater does not end when the cargo arrives at its destination. Many items, including both unit and non-unit supplies and equipment, are returned from theaters to CONUS. Theater CINCs are also responsible for the movement of those items from in-theater points-of-origin through their arrival at a theater POE. For simplicity and consistency of discussion, this plan considers all returning materiel as retrograde cargo.

The visibility of all retrograde shipments of non-unit cargo must be provided by a theater transportation system that captures pertinent shipment and item identifying data, including the TCN or shipment identification number of unit and non-unit cargo, and then feeds that data to the operating port system and GTN. The identifying data must be captured from both commercial and DoD sources. In addition, the system must have the same capabilities for retrograde cargo being moved by foreign commercial means as the CFM system and TC AIMS have for producing origin transportation documentation. Upon arrival of the retrograde cargo at the POE, the port system would update the movement information and pass it to GTN. Despite the logical simplicity of that concept, the essential theater transportation system has not yet been developed.

For intratheater movements, the information flow would essentially be the same as for retrograde movements except that not all cargo movements will involve port systems.

Action: Executive agent ensure that the theater transportation system captures ITV information from foreign carriers.

Personnel — Unit Movements

Background

Introduction

Prior to 1993, the responsibility for maintaining visibility over intransit personnel resided with the Military Services, TCCs, and individual units. The Military Services routinely developed their own policies and procedures governing the movement of personnel up to the point when they entered AMC's terminals. The Military Services and theater component commands also operated air terminals and manifested passengers during peacetime and contingency operations.

The Headquarters, U.S. Air Force developed and coordinated procedures for unit personnel movements, which were eventually published as Joint Service Regulations. However, unit personnel movements are still accomplished using

manual procedures developed by the Military Services. This situation resulted from the Military Services having responsibility for developing their own unit manifesting capability within the TC AIMS family of systems.

Desert Shield/Storm Lessons Learned

Operations Desert Shield/Storm required an unprecedented rapid movement of personnel from CONUS to the theater of operations. Although the transportation and personnel communities met that challenge through the innovative use of airport infrastructure and communications systems, their success was tempered by the lack of ITV of personnel moving into, within, and out of the area of operations.

As a result, the theater personnel community could not track the identity, location, and movement schedules of incoming personnel. Furthermore, Military Service personnel organizations were unaware of the number of passengers manifested and aircraft arrival times. These shortcomings complicated and delayed the planning for onward movement of military personnel. In addition, extensive television coverage prompted numerous relatives to inquire about service members' status, placing additional demands on the personnel community.

USTRANSCOM Authorities

In January 1993, the Acting Secretary of Defense, under authority of DoD Directive 5158.4, assigned to CINCTRANS the responsibility to "... submit as necessary to the SecDef [Secretary of Defense], through the CJCS [Chairman, Joint Chiefs of Staff], the USD(A&T) [Under Secretary of Defense for Acquisition and Technology] and such other department officials as may be appropriate, for approval of any changes to DoD transportation policies." He further directed CINCTRANS to ensure compatibility between peacetime and wartime procedures. These actions effectively centralized responsibility for DoD passenger policy and procedures at USTRANSCOM. CINCTRANS subsequently refined AMC's and MTMC's passenger roles by designating AMC responsible for dealing with industry and MTMC responsible for dealing with customers. The Military Services, however, were to continue developing independent TC AIMS capabilities for tracking and manifesting units.

Ongoing Initiatives

GTN and TC AIMS Interface

Recognizing the need to develop an interface between the TC AIMS systems and GTN, AMC has published a draft *Interface Design Document (IDD) for the AMC Communications Gateway, Volume II: Passenger Transactions,* dated 21 December 1993. The communications gateway will route a TC AIMS manifest

message directly to GTN or to both GTN and PRAMS, depending on the enroute station or destination system requirements. PRAMS will update GTN every two hours with information on passenger movements.

CAPS II Enhancements

In August 1993, AMC began installing the new CAPS II system at its fixed aerial ports/air terminals. CAPS II combines passenger processing and air terminal command and control operations into one system. AMC also plans to install CAPS II at all aerial ports now served by the existing Remote Consolidated Aerial Port System. In addition, it will use a Deployable Consolidated Aerial Port System (DCAPS) to provide real-time passenger ITV information from deployed locations. AMC will use DCAPS primarily for mobile aerial port personnel in support of wartime and contingency mobility operations.

Requirements

Standard Manifest Data Elements

USTRANSCOM and the Military Services agree on the need for all manifesting systems to use standard passenger manifest data elements. USTRANSCOM is developing a standard manifest for both unit and non-unit moves. That manifest would be included in MILSTAMP and promulgated to the Military Services for use in developing their TC AIMS passenger manifesting systems. However, in lieu of a standard format, the Air Force CMOS community developed a separate set of critical data elements for manifests and a standard format. The use of this format has resulted in some AMC systems not being able to absorb all of the additional critical Air Force data requirements without further software reprogramming. For these reasons, USTRANSCOM is accelerating the development of the standard manifest for unit and non-unit moves.

Action: USTRANSCOM develop and disseminate standard critical manifest data elements to the Military Services' transportation policy managers, TC AIMS program managers, and MILSTAMP committee.

Sealift Passenger Moves

Recent personnel redeployments by ship from Somalia surfaced the need for an automated personnel manifesting capability. During Desert Shield, port operators and MSC added passengers (supercargo) names onto cargo manifests or ship sailing messages to maintain a record for immigration purposes and if the ship sank. These procedures were manual.

In the future, TC AIMS will create the passenger manifest and then pass it to WPS. In turn, WPS must have the capability to transmit sealift passenger

manifest data to GTN. However, currently there are no formats, procedures, or automated systems for manifesting passengers on vessels.

Action: USTRANSCOM and MTMC ensure that WPS includes the capability to interface personnel manifesting data with TC AIMS and that this information is transmitted, in an automated format, to GTN and the Military Services' TC AIMS.

Rapid Data Entry

The quick and accurate entry of data into a unit move passenger manifesting data base is essential. CAPS II and TC AIMS rely on either manual data entry or stored automated information. Manual data entry is particularly labor intensive, time consuming, and prone to errors. A Standard Automated Input Media Device (SAIMD) is needed to automate the capturing of passenger data. The SAIMD device or card would contain information that can be rapidly fed into the DoD's passenger processing and manifesting systems.

The Joint Staff has been given the functional responsibility by the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence), ASD(C^3I), to develop, test, and field the Multitechnology Automated Reader Card (MARC) technology in support of the medical community. In addition, the Army is testing the Soldier Readiness Card (SRC) to support mobilization. These cards contain fixed and changeable data elements comprised of bar-code, magnetic stripe, and microchip storage technologies.

Regardless of the number of devices or cards and the types of data needed to satisfy the functional users, DoD requires a standard technology for capturing data at the source that is compatible with the data processing systems supporting its ITV passenger and patient processing requirements.

Action: OSD and the Joint Staff select a technology and standard for capturing passenger and patient movement data.

Action: Military Services and AMC incorporate the selected technology into TC AIMS and CAPS II.

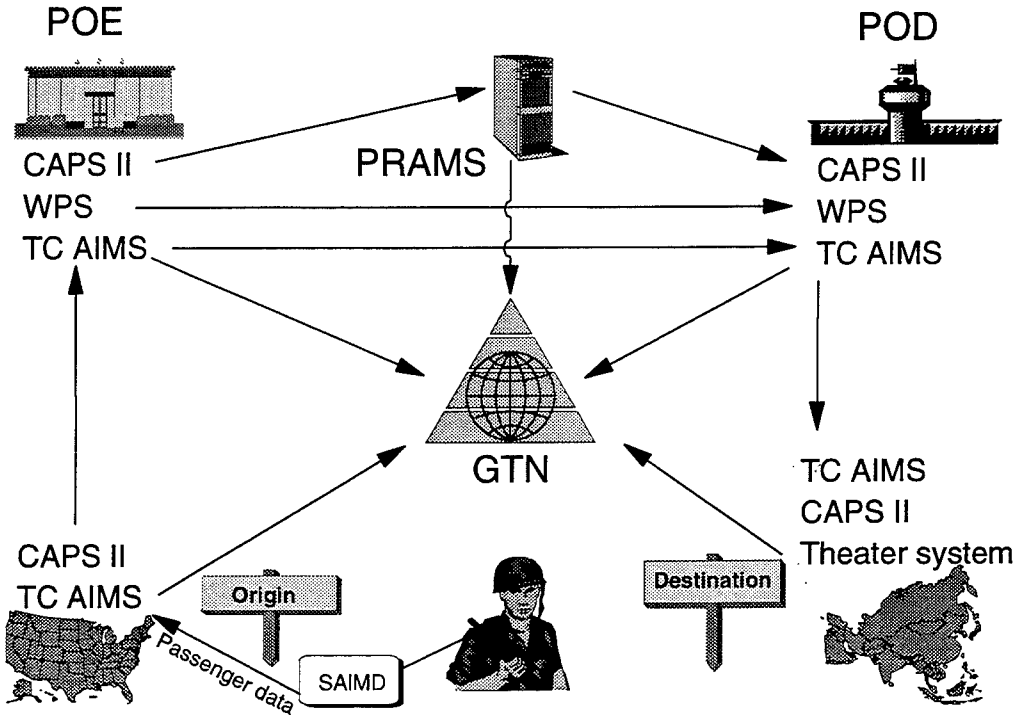
Interfaces

Although the personnel manifesting capability is not fully developed in TC AIMS, it is essential to maintain visibility of deploying personnel. As a consequence, the Military Services' TC AIMS must be capable of interfacing with CAPS II, WPS, GTN, joint theater transportation system, and other TC AIMSs for the purpose of passing unit personnel manifest information. This requirement is particularly challenging because current doctrine permits either AMC or any Military Service to operate the origin, APOE, APOD, or final destination.

Action: Military Services and USTRANSCOM ensure that TC AIMS and CAPS II have the capability to exchange unit move passenger information and transmit that information to GTN.

Operating Concept

The information source for unit personnel tracking is either TC AIMS or CAPS II, depending on the location from which the unit deploys. Those systems must have the capability to exchange standard manifest information and transmit that information electronically. One of the keys to this concept is implementation of a standard passenger manifest. That manifest must also be transferable to other TC AIMS. Figure 3-10 depicts the proposed operating concept for unit personnel.



Note: All unlabeled arrows indicate manifest data flow.

Figure 3-10.
Unit Personnel Movements — Operating Concept

For air movements, TC AIMS or CAPS II would pass passenger manifest information to GTN.[3] If the passengers move by sea, TC AIMS would pass passenger information to WPS and GTN. Upon arrival at the aerial or surface POE, CAPS II, TC AIMS, or WPS would pass passenger arrival information to GTN.

[3]The CAPS II interface with GTN uses the AMC communications gateway to access PRAMS. In turn, PRAMS, which resides on HOST, passes information received from CAPS II to GTN.

When the passengers arrive at the aerial or surface POD or forward airfield, CAPS II, TC AIMS, or WPS would pass arrival information to GTN and to the theater transportation system.

When a unit moves from the aerial or surface POD or forward airfield, the POD system would pass passenger movement information to GTN. At the destination, either the theater transportation system or TC AIMS would advise GTN that the unit passengers have completed their movement.

For unit redeployment operations, TC AIMS and CAPS II would operate like they would for a CONUS deployment.

PERSONNEL — NON-UNIT MOVEMENTS

Ongoing Initiatives

AMC establishes and promulgates non-unit personnel movement procedures and develops supporting automated systems. PRAMS is AMC's system for planning and executing international non-unit passenger airlift reservations. It processes airlift reservations for AMC-procured or -controlled aircraft and prepares non-unit passenger reservations and manifesting in peace and war. It also performs flight and reservation processing, passenger manifesting, data updating, data inquiry, reporting, historical data retention, and system maintenance procedures. Upon completion of the reservation function, PRAMS provides a preliminary passenger manifest to the Passenger Automated Check-in-System at fixed aerial ports and commercial gateways.

AMC is also building an interface between PRAMS and commercial reservation systems. The objectives of this interface are to provide base-level PRAMS users access to transportation offices worldwide and fulfill future ITV requirements. The DoD has approved the interface system and made the necessary funds available for initial implementation at 200 DoD sites worldwide.

Requirements

The personnel community and, to a lesser extent, the transportation community require a comprehensive non-unit personnel tracking capability. USTRANSCOM plans to provide that capability through GTN. The DoD has four high-level requirements for tracking non-unit personnel in GTN: access commercial reservations systems, capture critical data elements, interface GTN with the Military Service personnel systems, and book non-crew patient attendants.

Access Commercial Reservations Systems

The Defense personnel community has a requirement to maintain visibility of all DoD passengers moving on commercial transportation. Although DoD personnel receive tickets through various commercial reservations systems (such as SABRE and APOLLO), GTN does not receive any information on those movements. Since an interface between PRAMS and commercial reservations systems is already being developed to capture information on some passenger movements, AMC should expand that capability to provide access to all DoD international passenger movements (official travel) on commercial carriers. PRAMS would then provide that data to GTN through an existing interface.

Currently, the personnel and transportation communities do not see a need for GTN to capture domestic passenger movement information. However, it would be beneficial if PRAMS had the capability to track these movements on an as-needed basis. Preliminary inquires indicate that this capability is technically and economically feasible.

Action: USTRANSCOM and AMC establish access to commercial reservations systems for purposes of retrieving all DoD international and overseas official travel, and the associated domestic legs of that travel, for GTN. In addition, USTRANSCOM and AMC provide the personnel and transportation communities with the capability to access commercial reservations systems to track DoD domestic travel on an as-required basis.

Capture Critical Data Elements

As with unit manifesting, the Military Services and USTRANSCOM agree on the need for standard, critical non-unit move passenger manifest data elements, such as skill code, gender, and ultimate destination (to include the name of a Navy ship).

Action: USTRANSCOM and AMC ensure that the interface design document for AMC's communications gateway includes skill code, gender, and ultimate destination.

Interface GTN With Military Service Personnel Systems

During peacetime, ITOs obtain reservations through either commercial travel offices or PRAMS terminals installed in their offices. During contingencies and exercises, however, neither the Marine Corps nor the Army use those capabilities. The Marine Corps assembles planeloads of passengers at its central processing bases and requests aircraft via Joint Operations Planning and Execution System (JOPES) from USTRANSCOM for non-unit passengers. The U.S. Army Personnel Command (USAPERSCOM) processes all Army non-unit personnel transportation requirements through its non-unit Personnel Flow Computer-Assisted Program (FLOWCAP).

During Desert Shield, USAPERSCOM assembled planeload lots of non-unit personnel and telephonically requested aircraft from the AMC Passenger Division. AMC then manually entered manifest data into CAPS II when the passengers arrived at the APOE. Following aircraft loading, an Army personnel detachment at the APOE updated the FLOWCAP system, which developed another manifest for the personnel community's use. (In a related effort, the Army Total Distribution Action Plan subsequently directed that FLOWCAP be interfaced with PRAMS via the Defense Data Network.)

The Army is upgrading its personnel system with a new system, Replacement Operations Automated Management System (ROAMS). FLOWCAP is a module of ROAMS. ROAMS is a USAPERSCOM-unique system for use by CONUS and OCONUS Army commanders. Fielded in February 1994, ROAMS does not have a system interface with PRAMS. If such an interface existed, PRAMS could automatically feed passenger information, including multiple group blocks and no-name reservation requests, into GTN.

Action: AMC and Army establish an electronic interface between PRAMS and ROAMS.

Action: Marine Corps, Navy, and Air Force determine the system they will use to interface with PRAMS to request passenger transportation and provide passenger ITV data to GTN.

Booking Non-Crew Patient Attendants

The medical community requires an automated link between PRAMS and TRAC2ES to book returning non-crew patient attendants who are assigned to travel with patients manifested on evacuation aircraft through TRAC2ES. When the attendants reach the patient's destination treatment facility, the transportation community ceases classifying them as patient attendants. It then categorizes them as returning temporary duty non-unit personnel. Since those individuals are generally in short supply, the medical community needs the capability to automatically secure their return reservations through PRAMS prior to departure from their home station.

Action: USTRANSCOM and AMC develop an interface between TRAC2ES and PRAMS for booking returning non-crew patient attendants.

Operating Concept

The Military Services and supporting CINCs manage the identification and movement of replacement personnel in both peace and war. Figure 3-11 shows the ITV operating concept for non-unit personnel movements. It calls for four new system interfaces with PRAMS – the ITV module of GTN (this interface already exists in the GTN prototype); TRAC2ES; Military Service personnel systems; and commercial airline reservations systems.

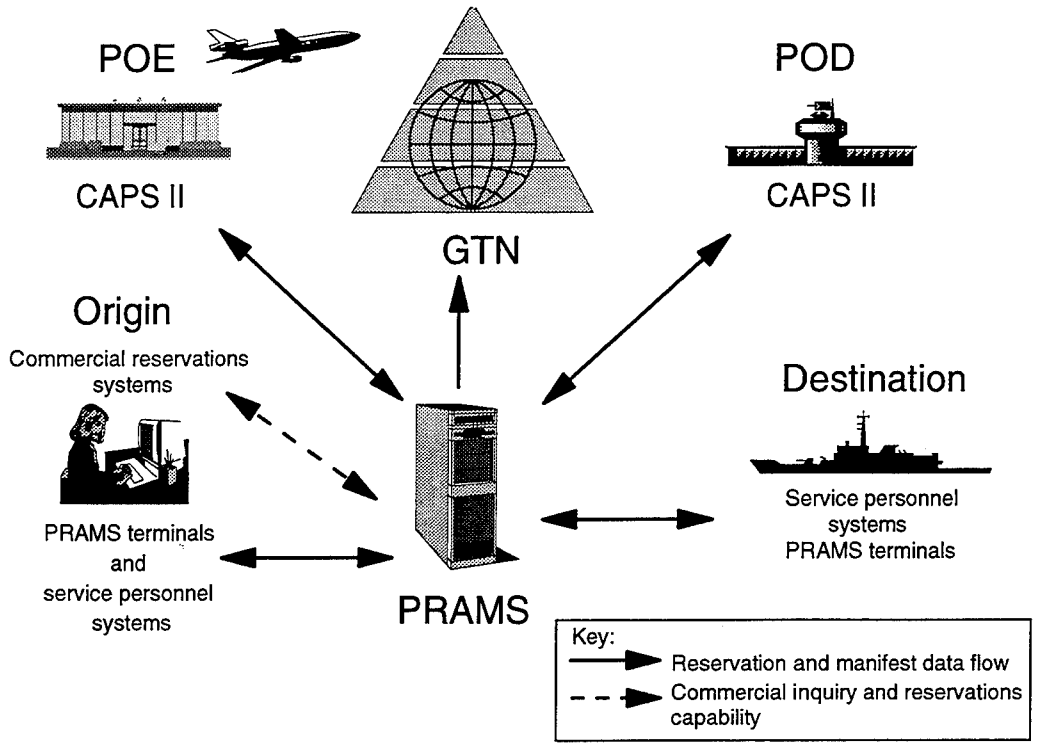


Figure 3-11.
Non-Unit Personnel Movements — Operating Concept

Requests for non-unit personnel movement reservations on channel airlift or in planeload lots would be made through PRAMS. PRAMS would also provide seat confirmation and passenger manifest information to users, serve as the primary information collection point for non-unit passenger manifesting and movement, and transmit the required information to GTN. All GTN users, even if they do not have access to PRAMS, would have the capability to track personnel movements through GTN.

Military Service personnel systems such as ROAMS would be linked to PRAMS, which would give the personnel community the capability to request and receive confirmation of reservations and maintain ITV of personnel movements without using PRAMS terminals. It would also eliminate the need for the Military Services to manually transfer data from personnel to transportation systems. For example, a Military Service personnel system could automatically transfer seat requirements and passenger information to PRAMS.

In addition to the Military Service personnel systems, PRAMS would be interfaced with commercial reservations systems such as SABRE and APOLLO. PRAMS would receive international passenger movement and other domestic movement data from those systems and then transfer it to GTN. Finally, an interface between PRAMS and TRAC2ES would accommodate the booking of non-crew patient attendants and the tracking of their return travel.

For non-unit redeployment operations, PRAMS and the Military Service personnel systems would operate much like they do in support of CONUS deployments, including interfaces with the aerial port operating systems and GTN.

PERSONNEL — MEDICAL PATIENTS

Background

DoD Directive 5154.6, "Armed Services Medical Regulating," April 1993, designates CINCTRANS as the single manager for intertheater medical regulating. As a result of this designation, the USTRANSCOM Surgeon's Office has reengineered patient movement business practices. Organizational changes to support these reengineered practices are underway, including unification of the Armed Services Medical Regulating Office (ASMRO) and Aeromedical Evacuation Control Center (AECC) into the new Global Patient Movement Requirements Center (GPMRC). Effective ITV of patients depends on medical regulating and medical evacuation. Medical regulating is the process that selects the Medical Treatment Facility (MTF) to provide the next level of care or treatment for a patient, while medical evacuation is the movement of a patient from one MTF to another. With the addition of the medical regulating function, USTRANSCOM is charged with providing seamless intertheater movement of patients. Intratheater regulating remains the responsibility of unified and specified commands.

DoD Instruction 6000.11, "Medical Regulating," May 1993, tasks CINCTRANS, in coordination with the Assistant Secretary of Defense (Health Affairs), to establish a global system to assist in the command and control of intertheater medical regulating and aeromedical evacuation, and to provide ITV of patients in both peacetime and contingency operations.

Ongoing Initiatives

USTRANSCOM's Surgeon is establishing new procedures and developing a new patient ITV command and control system. Although both actions are vital, the development of a command and control system for tracking patients in transit is clearly the most critical. That system, TRAC2ES, integrates the medical regulating and air evacuation processes, and the patient movement information from various theaters into a centralized global system. TRAC2ES is also one of four modules of GTN.

USTRANSCOM began developing TRAC2ES to aid in managing its intertheater and CONUS medical regulating and aeromedical evacuation responsibilities. Several other DoD Components, including the DoD Inspector General, subsequently identified a need for TRAC2ES to also support the intratheater patient regulating missions of the theater CINCs. Today, TRAC2ES is being developed to accommodate that intratheater mission, although mission execution remains the responsibility of the theater CINC.

Requirements

The DoD's requirement for patient ITV is to locate and track, by name or other unique identifier, individuals moving through its aeromedical evacuation system for the purpose of medical treatment. During movement, many patients are accompanied by medical equipment (referred to as patient movement items, or PMI) and attendants. Consequently, medical patient ITV must be viewed in terms of all three of those elements – patients, PMI, and attendants – each of which must be tracked with a varying level of detail. With attendants, the requirement is for USTRANSCOM to arrange for round-trip transportation. The concept is covered under the non-unit personnel movements section of the plan.

Operating Concept

The TRAC2ES concept, which was validated in January 1994, is currently in prototype development, with full operational prototype capability projected for the third quarter of 1997. The system is expected to contain information required to support the new business processes identified by the Corporate Information Management effort and information from existing systems. Among these are airlift scheduling systems and existing legacy systems such as the Defense Medical Regulating Information System (DMRIS) and Automated Patient Evacuation System (APES).

Patient ITV

Patient tracking information would be maintained by the GPMRC and by Theater Patient Movement Requirements Centers (TPMRC), as shown in Figure 3-12. Although both centers would use similar TRAC2ES information files, their missions are different – TPMRC focuses on medical regulation and evacuation from the theater while GPMRC focuses on the global allocation of scarce medical resources.

Upon a patient's entry into an MTF, the MTF would generate a Patient Movement Request (PMR). If there is some doubt whether a patient requires evacuation, TRAC2ES would generate an Advance Patient Movement Request (APMR) based on the patient's diagnosis. When the patient is validated for evacuation, the MTF would change the APMR to a PMR. When an attendant is required to accompany the patient, the PMR would contain the attendant's name along with additional identification and tracking information. Ideally, patient information should be provided through the use of a MARC, although manual data generation is still the norm.

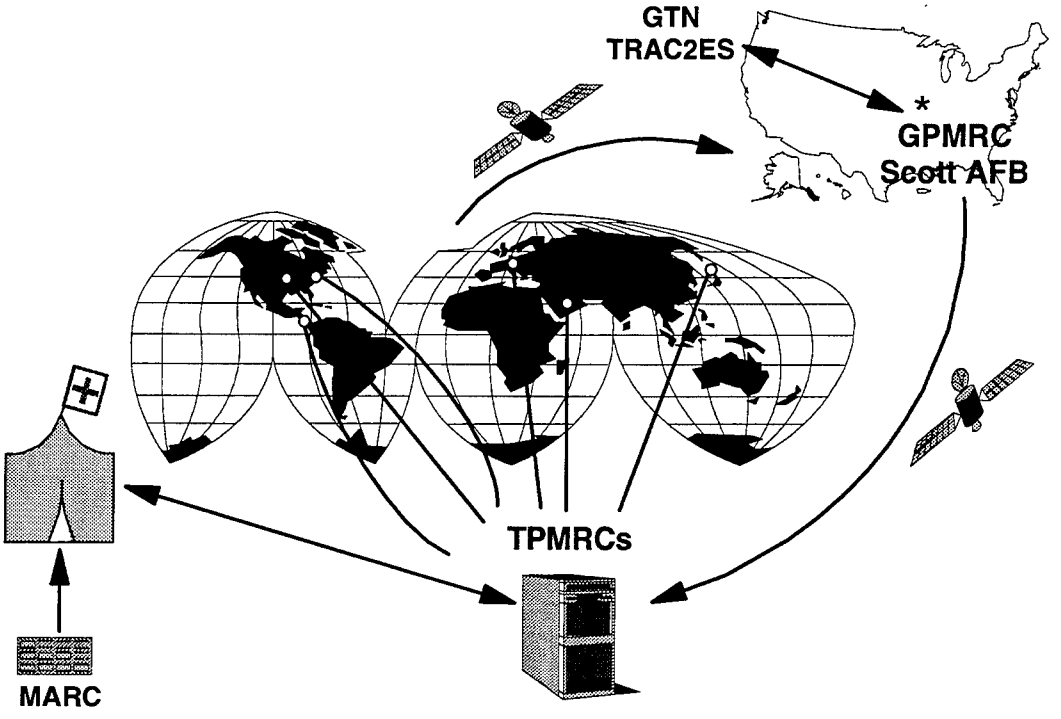


Figure 3-12.
Medical Patients — Operating Concept

Whenever a patient can be treated within the theater, the TPMRC would first regulate the movement of the patient within the theater. If the patient needs to be evacuated to a CONUS MTF, the TPMRC would provide a regulation-evacuation solution to the GPMRC for approval. The GPMRC then would pass the transportation instruction and treatment facility information through the TPMRC back to the MTF that generated the PMR. As a result, TRAC2ES would provide patient ITV, by name, from the time a patient enters an MTF, through the evacuation process, until arrival at the destination MTF for treatment.

The reliability and responsiveness of TRAC2ES is highly dependent upon the timeliness and quality of information that it receives. As a consequence, the DoD needs to design an effective information source system at the MTF level. A prime candidate for such a system is the MARC. Although the ASD(C^3I) has lead responsibility on the use of automated cards, such as MARC, the Joint Staff has the functional responsibility. Recently, the Joint Staff initiated action to expedite the development, testing, and fielding of the MARC media to support both medical and mobility applications.

Patient Movement Items

Life-sustaining equipment often accompanies patients when they are evacuated. The DoD does not have any automated systems for tracking the use of

life-sustaining critical equipment items, such as respirators and ventilators. However, USTRANSCOM plans to use TRAC2ES to monitor the equipment status of global pools of PMIs and assist in the redistribution of these items among theaters.

The DoD's concept for tracking critical patient movement items is similar to that used in support of patient tracking. The PMR would contain the evacuee's accompanying equipment list. As the patient and accompanying equipment arrive at the destination MTF, TRAC2ES would update the equipment inventories in the global pools. (Global pools contain information on equipment types and inventory levels at theater and CONUS locations.) Medical personnel would then use that information to identify the equipment that needs to be returned to the theaters.

Related Issues

At the annual Joint Casualty Evacuation Working Group meetings, the Military Services concurred that the current TRAC2ES concept satisfies their requirements for patient ITV. However, two issues remain unresolved.

The Military Services agree that patient tracking and visibility should be part of an overall personnel system because the medical community is not the only user of patient ITV information. The personnel community also needs patient information, particularly when it must respond to family or public requests for a military member's location and status. Also, a Joint Casualty and Mortuary Affairs Working Group convened by the Under Secretary of Defense (Personnel and Readiness) is examining the operating practices of the various casualty and mortuary affairs programs. One of the Working Group's objectives is to identify the information requirements for tracking casualties and human remains. Although this group is making progress, it requires the involvement of the medical community.

Action: DUSD(L) request the Under Secretary of Defense (Personnel and Readiness) to undertake the development of an interface between the DoD's medical and personnel systems.

The Army, as the Single Integrated Medical Logistics Manager, has expressed concern about TRAC2ES' regulation of critical PMI. Under the current concept, TRAC2ES would monitor the status of predesignated global pools of PMIs and assist in their redistribution among theaters. Although not yet fully defined, the concept does not address the Army's desire for PMI status (quantities and types) at the MTF level, which is the level where the Army makes PMI-related management decisions. The concept also fails to satisfy the Army's need for additional PMI information, such as make, model, serial number, and stock number. USTRANSCOM views the Army's information needs as a logistics information and inventory management issue that is beyond the scope of TRAC2ES.

Action: Assistant Secretary of Defense (Health Affairs) and the Army validate the requirement for developing a separate system to aid in managing PMIs.

CARGO — PERSONAL PROPERTY

Background

The DoD defines personal property as the household goods, unaccompanied baggage, privately owned vehicles, and mobile homes belonging to military members and civilian employees of the DoD and U.S. Coast Guard. Upon reassignment to another location, the U.S. government pays for the movement and storage of DoD and Coast Guard members' and employees' personal property as authorized by governing laws, regulations, and policies. Personal property movement and storage entitlements vary by grade and circumstance as described in the Joint Federal Travel Regulation.

DoD Directive 4500.34, "DoD Personal Property Shipment and Storage Program," 10 April 1986, provides overall DoD policy for the movement and storage of personal property; designates MTMC as the program manager; and authorizes publication of DoD 4500.34-R, "Personal Property Traffic Management Regulation (PPTMR)," October 1991. The PPTMR prescribes day-to-day operating procedures for personal property shipments.

Although the DoD Personal Property Shipment and Storage Program functions under centralized MTMC management, operations are carried out at 272 Military Service transportation offices. Located throughout the United States and overseas, and configured, named, and resourced according to the owning Military Service's standards, those offices are generically referred to as personal property shipping offices (PPSOs).

Commercial carriers perform more than 90 percent of all DoD personal property shipments and the storage incident to those shipments. Under the terms of a Tender of Service signed by carriers and provisions of through government bill of lading (TGBL) and international through government bill of lading (ITGBL) shipments, carriers are responsible for on-time pickup and delivery, and for loss- and damage-free handling.

Current ITV Capability

The Defense transportation community concurs that the current policies and procedures governing the movement and storage of DoD personal property provide a reasonable level of ITV because of several reasons:

- Shipments [such as Direct Procurement Method, Code 5 (household goods) and Code J (unaccompanied baggage)] that move entirely or partially within the DTS enjoy a degree of ITV by virtue of the TCNs that are assigned to those shipments. The TCN permits a shipment to be identified and tracked.

- Blue Bark shipments (personal effects of deceased members or dependents) are monitored by the deceased member's unit, transportation officers, and Casualty Assistance Officers from time of shipment to ultimate delivery. These types of shipments are moved under a manual "Report of Shipment" process that affords some control.

- Each carrier wanting to conduct business with the DoD must sign a Tender of Service for Personal Property, Household Goods, and Unaccompanied Baggage. The Tender of Service describes a number of ITV-related requirements that each carrier must satisfy, such as having to notify the origin and destination PPSOs, prior to the required delivery date (RDD), when delivery by the RDD is not possible; providing the shipment's last known location; and furnishing an estimate of the delay beyond the RDD.[4]

- Some ITV is also available through a provision in International Personal Property Rate Solicitation I-3, Item 532, Intransit Visibility Services, which requires carriers to provide shipment status updates upon request from MTMC. The provision requires carriers to provide ITV on a specified shipment or series of shipments by monitoring and reporting movement progress through various transit points.

Requirements

In view of those current ITV capabilities, the Defense personal property community concedes there is little justification to expand personal property shipment ITV and link it with a DoD-wide system such as the GTN. However, it also agrees there are benefits associated with enhancing those capabilities, such as:

- Shipments moving between CONUS and overseas locations pass through numerous nodes (local carrier agents, line-haul carriers, forwarders, port agents, ocean carriers, and others). These transshipments increase the opportunities for loss, damage, delays, and misroutings. ITV – particularly when shipments commence and complete their ocean transit and when they miss their RDD – could contribute to reducing such adverse incidents. It could also result in both financial (in terms of rental commitments, home

[4] Tender of Service Section IV, Paragraph A.41c.

purchases, and travel plans) and real-time psychological (peace of mind) benefits to members and their families.

- Carriers who declare bankruptcy often leave a trail of frustrated shipments, primarily because their locations are unknown. Although ITV could mitigate the impact of business failures and bankruptcies on shipments, such events do not warrant expanding ITV on this basis alone.

In addition to alleviating the negative impacts of these two conditions, enhanced ITV of personal property shipments could make it easier for DoD transportation personnel and commercial carriers to divert shipments; determine why shipment deliveries are late; and reduce storage requirements (and storage costs) at destination.

Enhancing Current ITV Capabilities

MTMC and the Military Services could increase their visibility over selected personal property shipments easily and inexpensively by taking the following action:

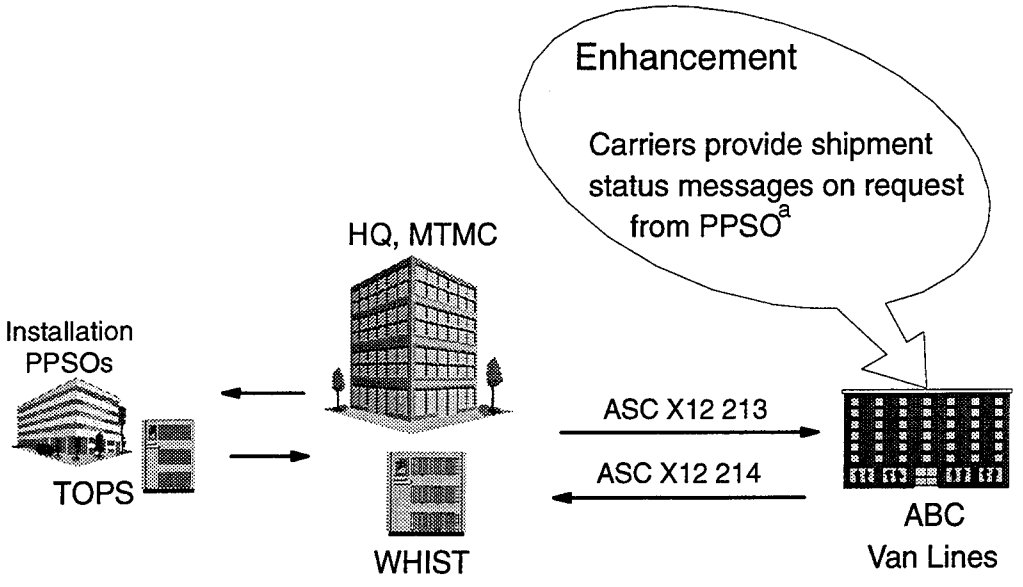
Action: USTRANSCOM, MTMC, and Military Services require carriers to provide, using EDI techniques, shipment status messages for designated shipments upon the occurrence of specific events:

- *For international shipments*: At PPSO's request, when ocean transit begins and ends, and when the shipment has not been, or cannot be, delivered by the required delivery date.

- *For Blue Bark shipments*: Automatically, upon occurrence of any or all of the events described above.

Figure 3-13 shows the concept for enhancing DoD's visibility over personal property shipments. For carriers that are EDI-capable, PPSOs would use the ASC X12 213 Transaction Set to transmit messages requesting shipment status information. The carriers, in turn, would use the ASC X12 214 Transaction Set to transmit shipment status messages to PPSOs. For non-EDI-capable carriers, the PPSOs would use telephone or some other means of responsive, time-sensitive communications to contact the carriers and receive their responses.

This concept is preferable to developing an electronic link between the DoD's personal property automated systems [i.e., the multi-service Transportation Operational Personal Property Standard System (TOPS) and MTMC's Worldwide Household Goods Information System for Transportation (WHIST)] and GTN. Unless it can be justified on the basis of monetary savings, improved efficiency, and enhanced customer service, that link is neither currently envisioned nor warranted.



* Blue Bark status messages to be provided automatically (without PPSO's request).

Figure 3-13.
Personal Property Shipments — Operating Concept

CHAPTER 4

Implementation Priorities and Schedules

INTRODUCTION

The complexities of developing a worldwide ITV capability, coupled with the realities of limited financial and personnel resources, mandate that DoD implement its ITV efforts in a logical manner. The priorities for implementation recommended in this chapter are not, however, intended to suggest a rigid implementation sequence (some implementation efforts will occur simultaneously) or the relative importance of one functional area over another. Rather, they are meant to assist in the allocation of scarce resources.

In consonance with those intentions, this chapter presents a process to prioritize the six functional ITV areas of unit cargo, non-unit cargo, unit personnel, non-unit personnel, medical patients, and personal property on the basis of their relative benefits, difficulties, resources, and existing capabilities. It also presents implementation schedules for the functional areas based on these four considerations. The schedules are intended to provide DoD with a plan for coordinating implementation activities throughout the ITV community. As such, they are subject to change as the realities of implementation unfold. Therefore, all schedules are contingent upon the planned award of the GTN development contract in early 1995.

PRIORITIZATION CRITERIA AND RATIONALE

Implementing the proposed ITV operating concepts would require substantial resources, particularly to develop and enhance the application systems. However, the responsible organizations – USTRANSCOM, TCCs, Military Services, and DLA – do not possess the required funds and personnel to pursue all six functional areas simultaneously. As a consequence, DoD should allocate its resources initially to those ITV applications that provide the most return for the least cost. In making those allocations, DoD should consider four criteria: benefits, difficulties, resources, and existing capabilities.

Benefits

The primary benefits of ITV are enhanced warfighting capability and reduced operating costs. The enhanced warfighting capability would stem from

the DoD's increased ability to divert and reconstitute shipments, plan transportation movements, exercise sound traffic management, and ensure personnel and materiel reach their destination in a timely and complete manner. The lower operating costs would result from greater efficiency in both transportation and supply operations. For example, knowing the status and location of a shipment would lessen the inclination to place a second requisition for the materiel comprising the shipment.

Difficulties

Although ITV offers potentially high benefits, other technical or operational barriers could prevent DoD from attaining them. For instance, poor data quality could reduce the benefits from a central ITV data base and the lack of assured communications in remote theaters could restrict ITV of cargo and personnel within theaters. These and other barriers are likely to increase the risk and difficulty of implementing ITV for many years.

Resources

This criterion includes the resources associated with making the needed system enhancements, such as monetary and personnel requirements for procuring hardware, software, or communications; developing or enhancing application systems; and developing system interfaces. Another factor that needs to be considered is the time required to obtain the necessary resources and field the objective systems.

Existing Capabilities

This last criterion recognizes that current policies, procedures, and automated systems already provide the Military Services and DLA with varying degrees of ITV. Such existing capabilities must be considered in prioritizing the six functional areas.

PRIORITIZATION AND IMPLEMENTATION SCHEDULES

This section presents the results of applying the above criteria and assigning high, medium, and low ratings to each of the six functional areas of ITV. Two examples illustrate that application.

- A functional area that offers high war and economic benefits, medium implementation difficulty, and low resource requirements should be assigned a high priority and selected as a near-term ITV initiative.

- A functional area that offers low benefits, high implementation difficulty, and high resource requirements should be assigned a low priority and not be selected for early implementation.

The prioritization process indicates that non-unit cargo and unit cargo warrant the highest priority application of implementation resources. Unit personnel, medical patients, and non-unit personnel warrant lower priorities, while personal property is assigned the lowest priority. The evaluation process for each of the six functional areas is described below.

Cargo – Non-Unit

Attaining ITV of non-unit cargo, from its origin to a POD and then forward to a theater destination, is a high-priority initiative. It would provide substantial wartime benefits because critical repair items and other sustaining materiel could be tracked while enroute. Experience gained during Desert Shield/Storm revealed numerous opportunities to reduce port bottlenecks and the sustainment pipeline, and divert enroute shipments to new destinations. Considerable economic benefits during peacetime would also accrue from knowing the status of requisitioned or purchased materiel while it is intransit, such as reductions in inventory levels.

Those benefits do not come free, however. The complexity of interfaces and variety of movement data sources make non-unit cargo ITV both a technical and operational challenge. However, those challenges are mostly offset by the system capabilities already in place, which greatly reduces the resources required to accomplish the many tasks associated with ITV of non-unit cargo. In order to achieve this capability, DoD should focus on developing a theater transportation system to identify and track non-unit cargo, and on capturing CONUS source data through increased use of EDI and other technologies.

Figure 4-1 shows the schedule for implementing 22 major non-unit cargo ITV initiatives. These 22 initiatives are comprised of eight programs, one for gaining ITV over theater movements and seven for capturing data from CONUS source systems.

Before DoD can have ITV over theater movements, it needs to develop a theater transportation system and then interface it with GTN. While these actions are vital to ITV, the theater transportation system cannot be developed before the end of the fourth quarter of 1997. Interfaces between that system and GTN, WPS, CAPS II, and commercial foreign carriers would then be completed by the end of the second quarter of 1999.

Task	Start/end date	Pg ref	Schedule[a]									
			1995		1996		1997		1998		1999	
			Jan	Jul	Jan	Jul	Jan	Jul	Jan	Jul	Jan	Jul
Develop theater system	1Q95 – 4Q97	C-2										
Interface GTN – theater system	2Q97 – 1Q98	C-10										
Interface GTN – DAMMS-R	2Q96 – 1Q97	C-10										
Interface WPS – theater system	1Q98 – 4Q98	C-12										
Interface CAPS II – theater system	3Q98 – 2Q99	C-12										
Interface theater system – commercial foreign carriers	1Q98 – 4Q98	C-12										
Interface GTN – GDSS[b]	1Q95	C-10										
Interface GTN – DAAS[b]	1Q95	C-10										
Interface GTN – IC3	3Q97 – 2Q98	C-10										
Interface GTN – CFM[c]	4Q95 – 1Q97	C-10										
Implement EDI for GBLs	1Q94 – 2Q95	C-23										
Enhance GTN – WPS interface[d]	4Q96 – 3Q97	C-10										
Enhance GTN – CAPS II interface[e]	2Q97 – 1Q98	C-10										
Implement EDI for vendor shipments	1Q95 – 1Q97	C-18										
Implement EDI for ordnance data	1Q94 – 2Q95	C-14										
Interface GTN – DTTS	3Q97 – 2Q98	C-10										
DTTS mode expansion	3Q94 – 3Q96	C-14										
Capture ordnance non-EDI data	3Q94 – 3Q96	C-14										
Implement EDI for CBLs	1Q95 – 2Q96	C-27										
Implement EDI for carrier status data	1Q95 – 4Q95	C-31										
Capture enhanced MILSTAMP data	1Q95 – 2Q97	C-39										
Interface GTN – postal system	2Q98 – 1Q99	C-10										

Note: IC3 = Integrated Command, Control, and Communications System.

[a]Month in schedule columns indicates a six-month period beginning with that month.

[b]This interface exists in the GTN prototype; it will also be required in the new GTN contract.

[c]Includes GBL, vendor, CBL, and carrier-status data.

[d]An interface with the GTN prototype already exists. In this task, the capabilities of that interface will be expanded to include vendor, carrier status, and enhanced MILSTAMP data.

[e]An interface with the GTN prototype already exists. In this task, the capabilities of that interface will be expanded to include vendor and enhanced MILSTAMP data.

Figure 4-1.
Cargo — Non-Unit Movements Implementation Schedule

The seven CONUS source data capture programs will incrementally increase DoD's visibility over non-unit shipments moving from CONUS sources to ports or CONUS destinations. Summaries of those programs are provided below:

- *GBL.* In January 1994, MTMC implemented at a few Defense shipping activities an EDI program to capture GBL data for payment applications. Eventually, that capability will exist at 600 CONUS shipping activities. In order to use that data for ITV, the DoD needs to develop an interface between GTN and the CFM system. That interface is scheduled for completion by the end of the first quarter of 1997.

- *Vendor.* About one-third of all non-unit cargo originates at commercial vendors. As a result, visibility over that cargo is a key priority in the implementation schedule. However, it is also difficult to achieve. DoD needs to first finalize an operating concept for capturing vendor data, and then modify its procurement regulations, policies, and procedures in accordance with that concept. It also needs to develop an EDI program for capturing vendor shipment information. Finally, USTRANSCOM needs to establish interfaces between GTN and the CFM system, WPS, and CAPS II for exchanging vendor information. These activities are targeted for completion by the end of the first quarter of 1998.

- *Ordnance.* DTTS currently captures ordnance shipment information for motor shipments and tracks those shipments using satellite technology. The DTTS Program Office needs to expand the system's tracking capabilities to include all modes of transportation within CONUS and to OCONUS destinations. It also needs to add an EDI capability for capturing ordnance shipment information from EDI-capable shippers, and other automated data collection capabilities for use with non-EDI-capable shipping activities. Finally, the Program Office needs to establish an interface between DTTS and GTN. These activities are scheduled for completion by the second quarter of 1998.

- *CBL.* USTRANSCOM needs to implement a program for capturing CBL data by using the same EDI infrastructure established for capturing GBL data. Before this program can be implemented, however, the DoD needs to enhance its EDI implementation guidelines and develop new operating procedures. Defense shipping activities then need to modify their EDI systems to transmit CBL data to the CFM system. Finally, the interface between the CFM system and GTN needs to be enhanced to include CBL data. These actions are targeted for completion by the first quarter of 1997.

- *Carrier status.* In addition to receiving shipment information for all non-unit cargo shipments, GTN will receive EDI-based carrier status messages from the CFM system and WPS on the location and condition of shipments under a commercial carrier's control. This application is widely used in commercial industry. To achieve such a capability, MTMC needs to augment the EDI capabilities of the CFM system and WPS to receive and process carrier status messages. It also needs to enhance the interfaces of those systems

with GTN. These activities are targeted for completion by the end of the third quarter of 1997.

- *MILSTAMP.* While GTN currently receives MILSTAMP data for shipments moving between POE and POD, the quality of that data is inadequate and compliance is inconsistent. In spite of those data shortcomings, GTN needs to modify MILSTAMP to capture additional data, including source to POE data. DoD also needs to improve the quality and timeliness of MILSTAMP data, with the use of EDI offering some improvement. Finally, USTRANSCOM needs to enhance the existing GTN interfaces with WPS and CAPS II to include the additional MILSTAMP data. These activities are scheduled for completion by the end of the first quarter of 1998.

- *Mail.* While still an ITV requirement, the capture of mail data is viewed as a low priority because of its marginal return and the absence of systems for providing ITV data. However, when the USPS develops a system that can provide GTN with mail shipment information, USTRANSCOM needs to develop an interface between GTN and that system. These actions are not likely to occur before the end of the first quarter of 1999.

Cargo – Unit

Intransit visibility of unit cargo is also a high priority. Providing the status of unit cargo movements to warfighting CINCs would give them the capability to balance force closures with operational requirements. However, the economic benefits of unit cargo visibility are less than those for other functional areas, particularly non-unit cargo. The existence and ongoing development of various unit movement planning and tracking systems, such as JOPES, GTN, GCCS, TC AIMS, CAPS II, and WPS, reduce the difficulties and resource demands associated with attaining ITV over unit cargo.

Figure 4-2 shows the schedule for developing ITV over unit cargo movements. The primary actions are the development of system interfaces and the development of a theater transportation system. In addition, many of the non-unit cargo source data capture programs also apply to unit cargo. The implementation timelines are dependent upon the completion of the theater transportation system by the end of the fourth quarter of 1997. In the interim, USTRANSCOM should develop interfaces between GTN and STACCS, DAMMS-R, and deployed TC AIMS, to achieve some theater ITV capability.

Task	Pg ref	Start/end date	Schedule[a]									
			1995		1996		1997		1998		1999	
			Jan	Jul	Jan	Jul	Jan	Jul	Jan	Jul	Jan	Jul
Interface GTN – TC AIMS	C-10	3Q95 – 2Q96										
Develop theater system	C-2	1Q95 – 4Q97										
Interface GTN – theater system	C-10	2Q97 – 1Q98										
Interface theater system – commercial foreign carriers	C-12	1Q98 – 4Q98										
Interface GTN – STACCS	C-10	4Q96 – 3Q97										
Interface WPS – theater system	C-12	1Q98 – 4Q98										
Interface CAPS II – theater system	C-12	3Q98 – 2Q99										
Interface TC AIMS – CAPS II	C-12	1Q96 – 4Q96										
Interface TC AIMS – CFM	C-12	1Q95 – 2Q95										
Interface TC AIMS – WPS	C-12	1Q97 – 4Q97										
Interface TC AIMS – TCAIMS	C-12	3Q96 – 2Q97										
Interface CFM system – GTN[b]	C-10	4Q95 – 1Q97										
Enhance GTN – WPS Interface[b]	C-10	4Q96 – 3Q97										
Enhance GTN – CAPS II Interface[c]	C-10	2Q97 – 1Q98										
Interface GTN – GDSS	C-10	1Q95										
Interface GTN – DAMMS-R	C-10	2Q96 – 1Q97										
Interface GTN – IC3	C-10	3Q97 – 2Q98										

[a]Month in schedule columns indicates a six-month period beginning with that month.

[b]An interface with the GTN prototype already exists. In this task, its capabilities will be expanded.

[c]This interface exists in the GTN prototype; it will also be required in the new GTN contract.

Figure 4-2.
Cargo — Unit Movements Implementation Schedule

Personnel — Unit

Visibility over unit personnel movements would improve DoD's ability to rapidly project forces and enhance its ability to provide planning information to theater CINCs. Although most ITV of unit personnel is currently obtained through slow and cumbersome manual data entry and manifest preparation procedures, AMC and the Military Services have expended considerable resources to automate the collection and processing of personnel information. Both AMC's CAPS II and the Military Services' TC AIMSs will be capable of producing automated passenger manifests. Those systems will initially provide ITV of personnel within overseas theaters, but eventually DoD will need to encompass all tracking of unit personnel in overseas theaters under one system.

Figure 4-3 shows the implementation schedule for unit personnel movements. USTRANSCOM plans to interface the various TC AIMSs with GTN by the end of the second quarter of 1996. Since CAPS II is in the process of being

fielded, AMC and the Military Services need to build interfaces between that system and the TC AIMSs to provide ITV over unit personnel deploying via air by the end of the fourth quarter of 1996. Development of an interface between WPS and the TC AIMSs by the end of the fourth quarter of 1997 would provide similar visibility over units deploying via sealift. In the interim, the CAPS II and TC AIMSs will be capable of providing ITV over units moving in overseas theaters until the theater transportation system is developed by the end of the fourth quarter of 1997. Finally, completing the development of SAIMD will improve the timeliness and accuracy of unit personnel data.

Task	Pg ref	Start/end date	Schedule[a]									
			1995		1996		1997		1998		1999	
			Jan	Jul	Jan	Jul	Jan	Jul	Jan	Jul	Jan	Jul
Interface GTN – TC AIMS	C-10	3Q95 – 2Q96										
Interface TC AIMS – CAPS II	C-12	1Q96 – 4Q96										
SAIMD development	C-36	1Q95 – 3Q96										
Interface TC AIMS – TC AIMS	C-12	3Q96 – 2Q97										
Interface TC AIMS – WPS	C-12	1Q97 – 4Q97										
Develop theater system	C-2	1Q95 – 4Q97										
Interface GTN – theater system	C-10	2Q97 – 1Q98										
Interface WPS – theater system	C-12	1Q98 – 4Q98										
Interface CAPS II – theater system	C-12	3Q98 – 2Q99										
Interface GTN – GDSS [b]	C-10	1Q95										
Enhance GTN – WPS [c] interface	C-10	4Q96 – 3Q97										
Interface GTN – PRAMS [b]	C-10	1Q95										

[a]Month in schedule columns indicates a six-month period beginning with that month.

[b]This interface exists in the GTN prototype; it will also be required in the new GTN contract.

[c]An interface with the GTN prototype already exists. In this task, its capabilities will be expanded.

Figure 4-3.
Personnel — Unit Movements Implementation Schedule

Personnel — Medical Patients

The visibility of patients undergoing aeromedical evacuation is essential during both peace and war. In peacetime, patient movement visibility also satisfies the DoD's and public's demand for timely and accurate casualty reporting, a demand that has been strongly influenced by extensive media coverage and instantaneous news reporting. During wartime, rapid casualty movement through an efficient aeromedical evacuation system enhances warfighting capabilities.

Current procedures for the movement of patients from origin to a destination MTF are neither fully automated nor integrated. The USTRANSCOM's Surgeon is developing TRAC2ES to overcome many of the existing shortcomings. Figure 4-4 shows the schedule for completing TRAC2ES. The test and evaluation of an operational prototype of TRAC2ES is scheduled for July 1994. If the test and evaluation is successful, TRAC2ES should be fielded by the third quarter of 1997. The other major activity in the implementation of ITV capability for patient movements is the development of a standard MARC.

Task	Pg ref	Start/end date	Schedule[a]									
			1993		1994		1995		1996		1997	
			Jan	Jul	Jan	Jul	Jan	Jul	Jan	Jul	Jan	Jul
Develop TRAC2ES	C-6	1Q93 – 3Q97										
MARC development	C-36	2Q94 – 3Q95										

[a] Month in schedule column indicates a six-month period beginning with that month.

Figure 4-4.
Personnel — Medical Patients Implementation Schedule

Personnel — Non-Unit

During Desert Shield/Storm, a lack of visibility of non-unit personnel movements hampered the DoD's ability to track replacements once they departed an APOE. It also inhibited the forecasting of onward movement requirements once replacement and filler personnel arrived in theater.

The current processing of non-unit personnel by PRAMS provides the transportation community with some movement visibility information. Although PRAMS is already interfaced to GTN, it is not linked to the Military Services' personnel systems. That shortcoming may require considerable resources to overcome.

Figure 4-5 shows the schedule for implementing ITV over non-unit personnel movements. Since a PRAMS interface with GTN is already complete, USTRANSCOM has some ITV of non-unit personnel moving on organic transportation. The remaining actions focus on developing PRAMS interfaces with commercial reservations systems and Military Service personnel systems. AMC is already building interfaces with the commercial reservations systems, while the interfaces with the Military Service personnel systems should be completed by the second quarter of 1996. PRAMS and CAPS II are fielded at some theater locations; ultimately, fielding should be expanded and integrated so that PRAMS functions as the standard theater system. Building an interface between PRAMS and TRAC2ES, although not a complicated process, will not be completed until late in the TRAC2ES development process.

Task	Pg ref	Start/end date	Schedule[a]									
			1994		1995		1996		1997		1998	
			Jan	Jul	Jan	Jul	Jan	Jul	Jan	Jul	Jan	Jul
Interface PRAMS – Military Service personnel systems	C-12	2Q94 – 2Q96										
Interface PRAMS – commercial reservations systems	C-12	3Q94 – 2Q95										
Interface TRAC2ES – PRAMS	C-12	1Q98 – 4Q98										
Interface GTN – theater system	C-10	2Q97 – 1Q98										
Interface GTN – PRAMS[b]	C-10	1Q95			▲							
Interface GTN – GDSS[b]	C-10	1Q95			▲							

[a]Month in schedule columns indicates a six-month period beginning with that month.

[b]An interface with the GTN prototype already exists; it will also be required in the new GTN contract.

Figure 4-5.
Personnel — Non-Unit Movements Implementation Schedule

Cargo — Personal Property

Intransit visibility over personal property shipments has the lowest priority because it does not contribute to a CINC's warfighting capability and it provides few economic benefits. In addition, existing policies and procedures already provide a reasonable degree of ITV.

Increasing ITV beyond that already available could be achieved by requiring carriers to provide PPSOs with international shipment information at critical transit nodes, such as the onset and termination of ocean transit and non-delivery by the RDD. The status updates, if provided electronically, would be relatively easy to initiate. These new requirements could be readily incorporated into existing personal property documentation, such as the PPTMR and Tender of Service.

Figure 4-6 shows the implementation schedule for developing such a capability. The process of implementing electronic status messages for selected types or categories of personal property shipments is not linked to the GTN and other systems interface efforts. The implementation process could therefore begin concurrently with other ITV-related system development and interface tasks.

Task	Pg ref	Start/end date	Schedule[a]					
			1995				1996	
			Jan	Apr	Jul	Oct	Jan	Apr
Implement EDI for carrier status data	C-44	1Q95 – 2Q96						

[a]Month in schedule column indicates a three-month period beginning with that month.

Figure 4-6.
Cargo — Personal Property Implementation Schedule

SUMMARY

The DoD should give the highest priority to developing ITV for non-unit and unit cargo, followed in turn by unit personnel, medical patients, and non-unit personnel. Personal property has the lowest priority. However, the multitude of tasks, and the urgent need for ITV for each functional area, makes a rigid approach to implementing ITV impractical.

The tasks identified for accomplishment within each of the six functional areas fall into four major categories — GTN system interfaces, other system interfaces, source data capture, and system development. Some of the tasks in those categories pertain to more than one functional area, which introduces the prospect of some synergy among the ITV tasks. Table 4-1 shows the relationships among the four categories and tasks by functional areas. Appendix C presents detailed implementation plans and schedules that substantiate the timelines shown in this chapter.

Table 4-1.
Functional Program Tasks

Category and task	Cargo — Unit Movements	Cargo — Non-Unit Movements	Cargo – Personal Property	Personnel — Unit Movements	Personnel — Non-Unit Movements	Personnel — Medical Patients
Systems development						
Develop theater system	X	X		X		
Develop TRAC2ES						X
GTN interfaces						
Interface GTN — TC AIMS	X			X		
Interface GTN — theater system	X	X		X	X	
Interface GTN — STACCS	X					
Interface GTN — DAMMS-R	X	X				
Interface GTN — CFM	X	X				
Enhance GTN — WPS interface	X	X		X		
Enhance GTN — CAPS II interface	X	X				
Interface GTN — DTTS		X				
Interface GTN — postal system		X				
Interface GTN — GDSS	X	X		X	X	
Interface GTN — PRAMS				X	X	
Interface GTN — DAAS		X				
Interface GTN — IC3	X	X				
Interface TRAC2ES — PRAMS					X	
Other interfaces						
Interface WPS — theater system	X	X		X		
Interface CAPS II — theater system	X	X		X		
Interface TC AIMS — CAPS II	X			X		
Interface TC AIMS — CFM	X					
Interface TC AIMS — WPS	X			X		
Interface TC AIMS — TC AIMS	X			X		
Interface theater system — commercial foreign carriers	X	X				

Table 4-1.
Functional Program Tasks (continued)

Category and task	Cargo — Unit Movements	Cargo — Non-Unit Movements	Cargo Personal Property	Personnel — Unit Movements	Personnel — Non-Unit Movements	Personnel — Medical Patients
Other interfaces (continued)						
Interface PRAMS — Military Service personnel systems					X	
Interface PRAMS — commercial reservations systems					X	
Source data capture programs						
Implement EDI for GBLs	X	X				
Implement EDI for vendor shipments		X				
Implement EDI for ordnance data	X	X				
DTTS mode expansion	X	X				
Capture ordnance non-EDI data	X	X				
Implement EDI for CBLs		X				
Implement EDI for carrier status data	X	X	X			
Capture enhanced MILSTAMP data	X	X				
SAIMD card development				X		X

APPENDIX A

System Descriptions

This appendix describes a number of systems that contribute to the Department of Defense's intransit visibility (ITV) system. The office or organization identified in brackets is the system developer.

ADAM III = Aerial Port Documentation and Management System [AMC]

Provides real-time automatic data processing in support of cargo and mail documentation and management.

ADANS = Airlift Deployment Analysis System [AMC]

Prepares movement tables and schedules for operation plans, operations orders, channel requirements, and tanker schedules. It assists in transportation feasibility analyses.

AFLIF = Air Force Logistics Information File [AFMC]

Provides some ITV for the Air Force by integrating supply and transportation information. The system can be queried by requisition number, transportation control number, or national stock number. It provides management and performance reports. AFLIF's carrier status electronic data interchange (EDI) program with FedEx and UPS will be incorporated into the CONUS Freight Management (CFM) system.

APACCS = Aerial Port Automated Command and Control System [AMC]

A new system that will automate the air terminal operations center and its associated work centers at Air Mobility Command (AMC) aerial ports. It will also provide real-time airlift information on cargo and passengers via an interface with the Command and Control Information Processing System.

APES = Automated Patient Evacuation System [AMC]

Automates the processes involved in transporting patients to medical treatment facilities worldwide. It includes automated patient manifesting, itinerary and mission planning, management reporting, and inter-agency communication. It interfaces with the Defense Medical Regulating Information System. The system will migrate to the TRANSCOM Command and Control Evacuation System (TRAC2ES).

ASPUR = Automated System for Processing Unit Requirements [MTMC]

Used in the sea deployment process, it receives unit movement requirements from Transportation Coordinator's Automated Command and Control Information System (TC ACCIS), processes those requirements, sends the movement release to the installation transportation office, and creates advanced Transportation Control and Movement Documents (TCMDs) for the Terminal Management System (TERMS). It is a legacy system that the Integrated Booking System (IBS) will eventually replace.

C2IPS = Command and Control Information Processing System [AMC]

A new system that will enable AMC organizations to exchange information between the operation, logistics, transportation, and intelligence functional areas. It will be a single, integrated computer system to aid the command and control activities in theater.

CAEMS = Computer-Aided Embarkation Management System [USMC]

Assists Marine Corps personnel in planning, documenting, and executing amphibious, Marine Prepositioned Force, and commercial load plans. It supports tactical and administrative loading and provides advanced artificial intelligence capabilities to assist planners in making accurate and efficient stowage decisions.

CAPS = Consolidated Aerial Port Subsystems [AMC]

A collection of systems that includes the ADAM III and Passenger Automated Check-in System (PACS). Provides AMC with a standardized, worldwide automated network of computers to process cargo and passengers moving through major aerial ports. CAPS information is also used to facilitate accurate and timely billing. It is being replaced by CAPS II.

CAPS II = Consolidated Aerial Port System II [AMC]

A real-time, minicomputer-based system used at aerial ports to carry out local cargo, mail, and passenger processing functions. It operates through a dedicated circuit to Headquarters Cargo System (HCS) computers. This system permits review and evaluation of cargo and passenger movements on a real-time basis. It includes the Aerial Port Documentation and Management System (ADAM III) that supports cargo shipments and the Passenger Automated Check-In System (PACS) that tracks passengers.

CFM = CONUS Freight Management [MTMC]

Provides support to DoD transportation processing and planning through interfaces with Defense transportation and commercial transportation systems. It automates shipment planning and document preparation. Through the use of EDI techniques, it exchanges shipment information with users from transportation offices, carriers, and the Defense Finance and Accounting Service.

CHCS = Composite Health Care System [ASD(HA)]

Provides automated support to medical treatment facilities worldwide. Its functions include scheduling patient appointments, and providing automated administrative support for radiology, pharmacy, laboratory, other ancillaries, outpatient clinical services, nursing, and other inpatient clinical services.

CMOS = Cargo Movement Operations System [USAF]

The Air Force's Transportation Coordinator's Automated Information for Movement System (TC AIMS) system that automates base level cargo movement processes and provides transportation movement officers with current unit movement data.

CRS = Commercial Reservation Systems [commercial industry]

A generic reference to the commercial airline reservation systems.

DAAS = Defense Automatic Addressing System [DLA]

Records MILSTRIP and other transactions and routes them among DoD activities.

DAMMS-R = Department of the Army Movements Management System – Redesigned [USA]

Provides transportation information to movements managers, highway regulators, and mode operators. It consists of seven interrelated subsystems: shipment management, movement control team operations, mode operations, addressing, highway regulation, convoy planning, and movement programming.

DASPS-E = Department of Army Standard Port System-Enhanced [USA]

Records cargo arrival, staging, and outloading information for OCONUS ports. It will be replaced by the Worldwide Port System (WPS).

DCAPS = Deployable Consolidated Aerial Port System [AMC]

Duplicates the functions of CAPS II cargo and passenger applications at remote sites (both CONUS and overseas). It consists of two independent software applications for cargo and passenger operations and is located at air terminals without sufficient traffic to justify a CAPS II system and at deployed air terminals/aerial ports.

DMRIS = Defense Medical Regulating Information System [ASD(AH)/USTRANSCOM/theater CINCs]

Tracks requests for patient beds and inter-hospital airlift transfer requirements, and maintains clinical and demographic patient information. It will be integrated with APES and migrate to TRAC2ES.

DSOATS = Defense Subsistence Office Automated Transportation System [DLA]

Automates and prints Government bills of lading (GBLs), calculates freight charges, and provides management information reports.

DSS = Distribution Standard System [DLA]

The Corporate Information Management (CIM) migration system that will replace many existing distribution legacy systems. Those legacy systems include the Defense Logistics Agency's (DLA's) Defense Warehousing and Shipping Procedures (DWASP) and Army's Supply Depot System (SDS). It is currently being developed and fielded.

DTTS = Defense Transportation Tracking System [DoD/USN/MTMC]

Monitors all intra-CONUS arms, ammunition, and explosives shipments moving by truck. It performs this task using a commercial satellite tracking surveillance service, which provides DTTS with hourly truck location reports, intransit truck status changes, and emergency situation notifications.

DWASP = Defense Warehousing and Shipping Procedures [DLA]

Provides automated processing and documenting capability for line items from receipt of material at depots through packing and shipping. It will be replaced by DSS.

ETADS = Enhanced Transportation Automated Data System [USAF]

An on-line, integrated system that assists in managing and controlling Air Force Materiel Command CONUS transportation systems, monitors the movement of Air Force cargo overseas, and manages Air Force Transportation funds.

FLOWCAP = Non-unit Related Personnel Flow Computer Assisted Program [USA]

A dBASE III application that schedules, controls, and tracks the flow of individual filler and casualty replacement personnel from CONUS replacement centers, through aerial ports of embarkation, to the theater of operations.

GCCS = Global Command and Control System [JCS]

A future replacement system for the Joint Operations Planning and Execution System (JOPES); it will use an open systems architecture.

GDSS = Global Decision Support System [AMC]

An AMC system that records and displays airlift schedules, aircraft arrivals and departures, and limited aircraft status. It provides executive-level decision support.

GTN = Global Transportation Network [USTRANSCOM]

Provides the automated support that USTRANSCOM and its components need to carryout their global transportation management responsibilities. It provides the integrated transportation data necessary to accomplish transportation planning, command and control, patient movement, and intransit visibility of units, passengers, and cargo during peace and war.

HCS = Headquarters Cargo System [AMC]

This system, formally named Headquarters On-Line System for Transportation (HOST), is comprised of six subsystems and contains airlift cargo data, worldwide manifest data, and air shipment information. It interfaces with the Military Service air clearance authorities and with GTN. It provides a centralized record of on-hand cargo and cargo movements to AMC.

HOST = Headquarters On-line System for Transportation [AMC]

See HCS.

IBS = Integrated Booking System [MTMC]

A new traffic management system at Military Traffic Management Command area commands that will register cargo for sealift, provide schedules for unit arrival at ports, and issue port calls to units. It will include the functionality of the Military Export Traffic System II (METS II) and ASPUR.

IC3 = Integrated Command, Control, and Communications System [MSC]

The Military Sealift Command's new command, control, and communications system that will be integrated with the Navy's Operations Support System. Both are under development.

IVIPS = Integrated Vessel Information Planning and Analysis System [MSC]

The system will provide the Military Sealift Command with a record of voyages and the location of ships, as well as the location of chartered and space-chartered ships operating in the Defense Transportation System. Eventually, IVIPS will be merged into the IC3 system module.

JOPES = Joint Operations Planning and Execution System [JCS]

The foundation of the DoD's conventional command and control system, which is comprised of policies, procedures, and reporting systems supported by automation. It is used to monitor, plan, and execute mobilization, deployment, employment, and sustainment activities in peace, exercises, crises, and war.

LIF = Logistics Intelligence File [USA]

Records Army MILSTRIP transactions placed at the wholesale resupply level and MILSTAMP transactions for transportation from origin to CONUS destination, or from port of embarkation to port of debarkation.

LOGAIS = Logistics Automated Information System [USMC]

Consists of a family of Marine Corps planning, deployment, and redeployment systems that help to bridge the gap between JOPES and other systems.

MAGTF II = Marine Air Ground Task Force War Planning System II [USMC]

A microcomputer-based planning system that supports a wide variety of high-intensity operational requirements. It accelerates the development, sourcing, analysis, and refinement of plans resulting in executable JOPES Time-Phased Force Deployment Data Bases.

MAIRS = Military Air Integrated Reporting System [AMC]

Records and displays airlift schedules, aircraft arrivals and departures, and aircraft status. It is compatible with the second generation of CAPS II.

MDSS II = Marine Air Ground Task Force Deployment Support System II [USMC]

Aids in planning for and supporting rapid military deployments anywhere in the world. It builds and maintains a data base of force and equipment data for various MAGTF configurations.

METS II = Military Export Traffic System II [MTMC]

Provides schedules for units arriving at ports and issues port calls to the units. It supports the booking of all surface cargo and is the current traffic management system at Military Traffic Management Command area commands. It will be replaced by IBS.

MIDAS = Military and International Dispatch and Accountability System [USPS]

An automated dispatch and accountability system that the United States Postal Service uses to monitor the movement of all international and military mail.

NATDS = Navy Automated Transportation Data System [USN]

Records TCMDs for lift of Navy cargo at the cargo clearance authority and registers them with either the Military Air Clearance Authority or TERMS.

NAVADS = Navy Automated Transportation and Documentation System [USN]

Located at Navy supply centers (now under DLA management), the system plans and document shipments. It will be replaced by DSS.

OSS = Operations Support System [USN]

Provides the Chief of Naval Operations and Fleet Commanders-in-Chief with a single, integrated command and control system to receive, process, display, maintain and/or access unit characteristics, employment scheduling, combat readiness, warfighting capabilities, and positional information of U.S. and allied forces.

PACS = Passenger Automated Check-in System [AMC]

Records passenger check-ins at aerial ports of embarkation and correlates the information with PRAMS.

PRAMS = Passenger Reservation and Manifesting System [AMC]

Records non-unit passenger reservations, issues boarding passes, and generates the aircraft manifest for fixed aerial ports of embarkation.

ROAMS = Replacement Operations Automation Management System [USA]

Integrates three automated Army systems (Automation of the Theater Shelf Requisitioning Process, FLOWCAP, and Automation of the Casualty Analysis Process) to identify and manage individual non-unit personnel flows into a theater.

SBSS = Standard Base Supply System [USAF]

The Air Force's base-level inventory management system. It aids in the management of subsidiary inventories in self-service stores, shop stores, or intermediate-level maintenance stock points; general housekeeping and administrative supplies for base and tenant units; and maintenance materiel and repair parts for the direct support of base units.

SC&D = Stock Control and Distribution [USAF]

Controls storage, allocation, and movement of Air Force Logistics Center inventories by processing requisitions and reporting on status. It provides asset visibility, timely items status to customers, and on-time issue and shipment actions. It will be replaced by DSS.

SDS = Standard Depot System [USA]

Receives data from depot supply and maintenance packaging preservation centers, warehouse workers, managers, inventory clerks, shippers, planners, transportation personnel, item managers, and finance officers on all materiel stored, maintained, processed, shipped, or handled at an Army depot. It supports day-to-day depot operations and management. It will be replaced by DSS.

SEASTRAT = Strategic Planning and Analysis System [MSC]

Provides the Military Sealift Command with the capability to rapidly develop movement tables from time-phased deployment data inserted during the deliberate planning process. It also assists in the development of execution movement schedules and transportation feasibility analyses.

STACCS = Standard Theater Army Command and Control System [USA]

Provides automated decision support tools and a data collection capability to facilitate command and control of theater forces. It supports commanders and staffs at Echelons Above Corps and tracks Army unit movements within theater. The system is classified.

STRADS = Strategic Deployment System [MTMC]

Enables the Military Traffic Management Command to rapidly retrieve, process, analyze, and monitor data associated with unit deployments and mobilizations. Using JOPES data, it assists users in determining the feasibility of deployment plans, provides force closure and surface modes, and evaluates installation outloading and port throughput capabilities. When fully operational, it will be the Command's secure command and control system, providing movement and ocean terminal information to permit worldwide monitoring.

TC ACCIS = Transportation Coordinator's Automated Command and Control Information System [USA]

The Army TC AIMS that is used to plan and execute unit deployments and redeployments worldwide, communicate data to the Forces Command for updating the JOPES, and communicate data to the Military Traffic Management Command for port operations and load planning. It generates air load plans, air cargo manifests, unit movement data, convoy march tables and clearance requests, rail load plans, bills of lading, and barcode labels.

TC AIMS = Transportation Coordinator's Automated Information for Movement System [USA/USMC/USAF]

A family of systems that automates the planning, organizing, coordinating, and controlling of unit-related deployment activities supporting the overall deployment process. It permits transportation offices to maintain an automated data base of current unit movement data. TC AIMS is a generic term for TC ACCIS, LOGAIS/TC AIMS, and CMOS.

TERMS = Terminal Management on-line System [MTMC]

Records cargo data for surface movements at the Military Traffic Management Command area commands. It also facilitates cargo receipt, staging, and planning at ports and generates the ship manifest upon completion of loading. This system will be replaced by the WPS.

TMIS = Theater Medical Information System [OSD(HA)]

Provides automated support to clinical care, ancillary services, patient administration, medical regulating, medical logistics, and blood distribution functions. It also provides management information to medical decision makers from unit to intermediate headquarters levels. It will interface with JOPES, DMRIS, and GTN.

TMS = Transportation Management System [USMC]

Provides the capability to monitor the movement of cargo, and to track, audit, certify, and provide payment for all billings received for the movement of Marine Corps freight, personnel, and contracted accessorial services.

TOPS = Transportation Operational Personal Property Standard System [MTMC]

Automates the processes and procedures governing the movement and storage of personal property belonging to military members and DoD civilians. It provides the processing and communications necessary for source data automation and ensures the accurate and timely exchange of information between personal property offices and finance centers.

TRAC2ES = TRANSCOM Command and Control Evacuation System [USTRANSCOM]

The medical component of GTN that functions as a command and control system to provide for global patient movement and regulating. It also provides patient intransit visibility, monitors critical patient medical equipment pools, and assists in round-trip transportation of patient attendants.

TRAIS = Transportation Reporting and Inquiry System [AMC]

An AMC System that processes transportation data received from CAPS II cargo ports worldwide. It provides transportation management information to plan resource allocations and analyze system performance.

TRAMS = Transportation Automated Management System [DLA]

Processes shipment data and operates on a two-tier system architecture design. Its functions include entering and validating shipment requests, awarding shipments to carriers with reason codes for not selecting the low-cost carrier, recording service failures, creating Government bills of lading (GBLs) and correction notices, printing shipping documents, transmitting GBL data to host computers, creating transportation discrepancy reports, producing management reports, and applying local non-use carrier penalties.

TSM = Terminal Support Module [MTMC]

Functions as a minicomputer-based terminal management and cargo documentation system. It uses LOGMARS technology for automated data capture. It will be replaced by WPS.

WHIST MOD = Worldwide Household Goods Information System for Traffic Management Modernization [MTMC]

A decision-support system that provides historical movement, quality assurance, and rate acquisition information to the Military Traffic Management Command. It supports policy, program, and management decisions.

WPS = Worldwide Port System [MTMC]

A new system being fielded that will function as the port operating system for military ocean terminals, Navy port activities, Army Transportation Terminal Units and Automated Cargo Documentation Detachments. It will replace TERMS and DASPS-E.

APPENDIX B

Glossary of Terms

This appendix defines some of the terms used in this plan.

Accompanying supplies: Materiel accompanying and considered part of a deploying military unit. Accompanying supplies are documented with a MILSTAMP unit movement transportation control number.

Automatic identification technology (AIT): Consists of process control hardware, application software, and hybrids that provide industry-standard real-time data acquisition to enhance productivity. It includes bar codes, radio frequency identification, magnetic stripes, smart cards, and optical laser cards. In DoD logistics, these technologies facilitate the capture of supply, maintenance, and transportation information for inventory and movement management, shipment diversion and reconstitution, and personnel or patient identification.

Cargo: Any items or supplies in transit.

Deployment: The relocation of forces to areas of operation.

Destination: The location to which units, materiel, or individuals are traveling. It is designated by the CINCs, Military Services, or Defense agencies.

Electronic data interchange (EDI): The computer to computer exchange of data from common business documents using standard data formats.

Intransit visibility (ITV): The ability to track the identity, status, and location of DoD unit and non-unit cargo (excluding bulk petroleum, oils, and lubricants); passengers; medical patients; and personal property from origin to the consignee or destination designated by the CINCs, Military Services, or Defense agencies, during peace contingencies and war.

Joint Transportation Corporate Information Management (CIM) Center (JTCC): An organization chartered by the Deputy Under Secretary of Defense (Logistics) on 11 August 1993. It was established under CINCTRANS and designated as the functional manager for implementing the CIM initiative for Defense transportation. Its mission is to improve the efficiency and effectiveness of the DTS through the application of functional process improvement techniques and central control of transportation related C-4 system development.

Legacy systems: A term used to describe automated information systems that perform the same functions as those performed by selected migration systems. Legacy systems have a finite life, with all further system development and modernization resources applied to the selected migration system.

Manifest: A document listing in detail the passengers or cargo carried aboard a ship or airplane.

Migration systems: Existing or planned and approved automated information systems officially designated to support standard processes.

Military Standard Requisition and Issue Procedures (MILSTRIP): Uniform procedures, codes, formats, forms, and time standards that control the interchange of logistics information relating to requisitioning, supply advice, supply status, materiel issues and receipts, and materiel return processes.

Military Standard Transportation and Movement Procedures (MILSTAMP). Standard data elements, codes, formats, documents, forms, rules, methods, and procedures that DoD Components and other U.S. Government Agencies/civil authorities use in the transportation and movement of materiel to, within, and beyond the Defense Transportation System (DTS).

Movement control: The planning, routing, scheduling, and control of personnel and freight movements over lines of communication. It includes the reception and onward movement of personnel, equipment, and supplies.

Multitechnology automated reader card (MARC): A form of identification card containing personal medical data used to process patients into medical treatment facilities.

Non-unit cargo: Supplies in transit that are not part of a unit or its equipment. It does not include unit accompanying supplies. Synonymous with sustainment cargo.

Non-unit personnel: All personnel requiring transportation to or from an area of operations other than those assigned to a specific unit. Examples of non-unit personnel are filler, replacement, temporary duty, temporary additional duty, civilian personnel, and medical evacuees.

Origin: The location from which personnel or materiel commence movement to a destination.

Passenger: Any individual who is being transported and is not a member of the assigned transport vehicle operating crew.

Patient: A sick, injured, wounded, or other person requiring medical/dental care or treatment.

Patient attendant: Any person designated to provide care to a patient who is in transit. A patient attendant is usually a military and/or medical person, but may be an accompanying family member.

Port of debarkation (POD): A station that serves as an authorized port to process and clear aircraft, ships, and traffic for entrance to the country in which located.

Port of embarkation (POE): A station that serves as an authorized port to process and clear aircraft , ships, and traffic for departure from a particular country.

Redeployment: The process of evacuating, moving, or returning units, non-unit cargo, and non-unit personnel from a theater of operations to another theater of operations.

Retrograde: Non-unit cargo and personnel evacuated from a theater of operations to the CONUS.

Shipment identification number: The unique number that identifies a shipment. (Includes GBL, TCMD, lead TCN, air manifest, etc.)

Standard Automated Input Media Device (SAIMD): A credit-card sized storage media that contains essential ITV information and additional space for supplemental data. This card may be used to carry personnel, medical and logistics data; e.g., MARC, Soldier Readiness Card (SRC), etc.; and is machine readable using automated reading devices.

Supercargo: Personnel that accompany cargo onboard a ship for the purpose of performing enroute maintenance and security.

Sustainment: The process of maintaining the level and duration of operational activity required to achieve established military objectives. It includes providing and maintaining the levels of forces, materiel, and consumables necessary to support the military effort.

Sustainment cargo: Supplies in transit that are not part of a unit or its equipment and therefore not documented with a MILSTAMP unit movement transportation control number. Synonymous with non-unit cargo.

Theater: A geographical area outside the CONUS for which a commander of a unified command has been assigned military responsibility.

Total asset visibility (TAV): The capability that permits operational and logistics managers to determine and act on timely and accurate information about the location, quantity, condition, movement, and status of Defense materiel. It includes assets that are instorage, inprocess, and intransit.

Trading partner: A term used frequently in EDI to indicate a business relationship with another company or activity.

Transportation control number (TCN): A unique 17-position alphanumeric data element assigned to control a shipment unit throughout the transportation pipeline.

Transportation Movement and Control Document (TCMD): The MILSTAMP shipment information document (DD Form 1384). It provides advance notice of shipments and the information necessary to process the shipments through the Defense Transportation System. The TCMD is the basis for preparation of air and surface manifests and for compiling logistics reports.

Unit: Any military element whose structure is prescribed by an authority, such as a Table of Organization and Equipment.

Unit equipment: The equipment prescribed to be in a unit's possession by an authority such as a Table of Organization and Equipment. The transportation of unit equipment is documented with a MILSTAMP unit movement transportation control number.

Unit line number (ULN): Two alphanumeric characters (the fragmentation and insert codes) added to a force requirement number to identify military units for a particular operational plan (OPLAN).

Unit personnel: All personnel assigned or attached to a specific unit and requiring movement as a unit to or from a theater or area of operations.

Value-added network (VAN): A computer accessible by a data communications network that provides a variety of value-added services designed to simplify communication among EDI trading partners. Some of those services include mailboxing that allows trading partners to independently schedule their data exchange; communications protocol and speed (data rate) conversions that permits communication among incompatible computers; and recordkeeping that provides audit trails.

Appendix C

Implementation Plans

INTRODUCTION

This appendix proposes a methodology and various schedules for implementing the functional operating concepts discussed in Chapter 3. The schedules show estimated times required to complete the implementation tasks, although the tasks and their completion times will change as work progresses. Table C-1 divides the implementation tasks into four categories of plans: systems development; Global Transportation Network (GTN) system interfaces; other system interfaces; and enhancing source data. It also identifies the page within this appendix where each category or subcategory is addressed.

Table C-1.
Implementation Plan by Category

Note: TRAC2ES = TRANSCOM's Regulating and Command and Control Evacuation System; EDI = electronic data interchange; DTTS = Defense Transportation Tracking System.

SYSTEMS DEVELOPMENT

The Department of Defense (DoD) needs to develop two additional systems in order to achieve a comprehensive intransit visibility (ITV) system: a theater transportation system and TRAC2ES. The implementation plans for these systems follow.

Joint Theater Transportation System

The Joint Transportation Corporate Information Management Center (JTCC) will support the development and implementation of a joint theater transportation system. Such a system will operate from port of debarkation (POD) forward to destination, and from theater origin to port of embarkation (POE). Table C-2 lists the tasks associated with this effort. The tasks are described in more detail below.

Table C-2.
Joint Theater Transportation System Implementation Plan

1.0 Develop functional requirements
1.1 Designate PEA
1.2 Establish baseline
1.3 Establish performance objectives
1.4 Develop operating concept
1.5 Develop detailed data requirements
2.0 Develop technical operating requirements
2.1 Identify technical requirements
2.2 Establish program requirements
2.3 Designate acquisition agency
2.4 Secure funding
2.5 Develop system integration strategy
3.0 Develop, integrate, and test system
3.1 Develop the system
3.2 Arrange for telecommunications
3.3 Train operators
3.4 Test the system
3.5 Field the system
4.0 Implement production system

1.0 Develop Functional Requirements

In coordination with the Joint Staff, DUSD(L) will designate a project executive agent (PEA) for developing the theater transportation system, JTCC will establish a baseline of current capabilities, establish performance objectives, develop a "to be" operating concept, and finalize theater data requirements.

1.1 Designate PEA

The DUSD(L), in coordination with the Joint Staff, will designate a PEA for managing the development of the theater system. JTCC will support the PEA.

1.2 Establish Baseline

The JTCC will establish a technical and functional baseline of current theater systems. Models depicting the systems as they currently operate will be developed to identify specific areas for improvement and determine the current activity costs.

1.3 Establish Performance Objectives

Under the guidance of the project executive agent, JTCC will support performance objectives for the future theater transportation system. At a minimum, the objectives will meet the requirements of the models produced during the Army/Marine Corps Battlefield Logistics effort and the Theater Combatant Logistics effort sponsored by the Deputy Under Secretary of Defense, Logistics [DUSD(L)] and the Joint Staff (J4), respectively. The JTCC will coordinate objectives with all CINCs, Military Services, DUSD(L), and the Joint Staff.

1.4 Develop Operating Concept

With the participation of the CINCs, Military Services, DUSD(L), and Joint Staff, the JTCC will develop the to be model of the theater transportation operating concept. This model will serve as the basis for developing the theater transportation system.

1.5 Develop Detailed Data Requirements

Based upon the to be process model and the Transportation Logical Data Model (currently being developed), the JTCC will develop a detailed data model for the theater transportation system. The data model will comply with existing DoD data standards.

2.0 Develop Technical Operating Requirements

In coordination with the CINCs and DUSD(L), the JTCC will develop technical operating requirements for the future theater transportation system. Technical requirements include those specifications that provide compliance with the DoD Technical Architecture Framework for Information Management (TAFIM) as well as operational considerations such as deployability, sustainability, processing and storage capacities and transmission rates. In addition, funding will be secured, an acquisition agency identified, and an integration strategy developed.

2.1 Identify Technical Requirements

Using the established models and analyzing expected scenarios, the JTCC will work with each CINC to determine expected wartime technical requirements. These requirements will consider environmental and operational considerations as well as established DoD standards.

2.2 Establish Program Requirements

Comparing the current technical baseline to the projected technical requirements and analyzing the established operational requirements, the JTCC will develop a program for the acquisition of a standard theater transportation program. The JTCC will recommend to DUSD(L), through the Joint Staff, an acquisition program that includes multi-year funding, an acquisition strategy, and that an acquisition agency be identified.

2.3 Designate Acquisition Agency

The PEA will recommend, through the Joint Staff, that the DUSD(L) designate either USTRANSCOM or a Military Service as the acquisition agency to develop and integrate the theater transportation system.

2.4 Secure Funding

The JTCC and the acquisition agent will continue to support DUSD(L) efforts to obtain sufficient funding to support the acquisition. Where appropriate, the JTCC will conduct analyses and recommend funding offsets from existing programs.

2.5 Develop System Integration Strategy

The JTCC will work with the acquisition agency and each CINC to assist in developing a systems integration and fielding strategy. The CINCs will ensure

that sufficient support capability (such as telecommunications capability) will be available for implementation. The JTCC will work with other Corporate Information Management activities to ensure that the emerging theater transportation system is fully interoperable with systems being fielded to support other functional areas.

3.0 Develop, Integrate and Test System

In this task, the acquisition agent and JTCC will develop, integrate, test, and field the theater transportation system. In addition, the acquisition agency will ensure the availability of telecommunications and establish a training program.

3.1 Develop the System

The acquisition agency will prepare and gain acquisition approval for the systems development and develop the system. The development effort will rely on integrating existing system modules as well as developing new capabilities. The acquisition strategy will be based upon the recommendations of Subtask 2.2, but will always include program direction by the JTCC and functional oversight by the PEA.

3.2 Arrange for Telecommunications

The acquisition agency, with JTCC oversight and coordination with the Military Services, Defense agencies and Unified Commands, will develop and administer a telecommunication support plan for each CINC and the CONUS support base. The plan will address intratheater and intertheater communications capabilities, requirements and efforts to provide assured communication during contingencies.

3.3 Train Operators

The acquisition agency will develop training programs to support the fielding of the system. Training programs will include institutional training within the sustaining base and field training within the units receiving the system.

3.4 Test the System

The JTCC will ensure that the PEA judges the functional acceptability of the theater transportation system by including participation from all CINCs, Military Services, Defense agencies and Joint Staff. Technical acceptability will be provided by a joint JTCC and DISA evaluation. Interim evaluation of functionality and technical sufficiency will be provided throughout the development and fielding of the system.

3.5 Field the System

The acquisition agency will field the tested system at all deployed theater locations.

4.0 Implement Production System

Upon completion of system testing and modification, DoD should begin to employ the system in a fully operational environment.

Implementation Schedule

Figure C-1 shows the schedule for developing and implementing the joint theater transportation system.

Major activity	Lead agent	Schedule					
		1995		1996		1997	
		Jan	Jul	Jan	Jul	Jan	Jul
1.0 Develop functional requirements	JTCC	▬	▬	▬			
2.0 Develop technical operating requirements	JTCC			▬	▬		
3.0 Develop, integrate, and test system	Acquisition agency				▬	▬	▬
4.0 Implement production system	USTRANSCOM						▲

Project team leader — USTRANSCOM.

Note: Month in schedule column indicates a three-month period beginning with that month.

Figure C-1.
Joint Theater Transportation System Implementation Schedule

TRAC2ES Development

This section identifies the tasks, responsible organizations, and schedule for developing and implementing TRAC2ES. Table C-3 lists the tasks associated with this effort. We describe each task in more detail below.

1.0 Finalize Functional Requirements

A project team, led by USTRANSCOM, with assistance from Military Service, Joint Staff, CINCs, and Office of the Assistant Secretary of Defense (Health

Table C-3.
TRAC2ES Development and Implementation Plan

1.0 Finalize functional requirements
1.1 Finalize operating concept
1.2 Finalize data requirements
1.3 Resolve business, legal, and security issues
2.0 Finalize technical operating requirements
2.1 Identify application systems modifications
2.2 Establish telecommunications strategy
2.3 Review and complete hardware requirements
3.0 Integrate and test TRAC2ES
3.1 Procure, install software/hardware
3.2 Modify application system
3.3 Develop program interfaces
3.4 Arrange for telecommunications
3.5 Update operational procedures
3.6 Train operators
3.7 Test, modify, and evaluate systems
4.0 Implement system

Affairs) representatives, will finalize the operating concept and data requirements; identify the application system modifications; and identify associated business, legal, and security issues for implementing TRAC2ES.

1.1 Finalize Operating Concept

In this subtask, the project team reviews the operating concept and makes adjustments to that concept, as required. Those adjustments include the use of multitechnology automated reader card (MARC) technology for patient source data and interfaces with other medical information systems.

1.2 Finalize Data Requirements

In this subtask, the project team reviews the results of the TRAC2ES prototype testing to determine if any additional data requirements need to be satisfied.

1.3 Resolve Business, Legal, and Security Issues

In this subtask, the project team resolves all business, legal, and security issues associated with implementing the proposed operating concept.

2.0 Finalize Technical Operating Requirements

The project team will identify all application system modifications, and reviews and completes the hardware requirements and telecommunications strategy.

2.1 Identify Application Systems Modifications

The project team will determine if any application system modifications are required.

2.2 Establish Telecommunications Strategy

The project team will establish the telecommunications links to accommodate the proposed operating concept.

2.3 Review and Complete Hardware Requirements

The project team, in conjunction with user representatives, will review and complete the hardware requirement for TRAC2ES.

3.0 Integrate and Test TRAC2ES

In this task, the Military Services' medical treatment facilities, Theater Patient Movement Requirements Centers, Global Patient Movement Requirements Center, Joint Medical Regulating Offices, Armed Services Medical Regulating Office, and Military Service and CINC Surgeon General staffs will acquire TRAC2ES, and then test, modify, and evaluate the system.

3.1 Procure, Install Software/Hardware

The project team will work with various users to ensure that they acquire the needed hardware and software.

3.2 Modify Application System

The project team will modify the application system, based on the experience of field activities testing the TRAC2ES prototype.

3.3 Develop Program Interfaces

The project team will develop the appropriate interfaces between the Composite Health Care System (CHCS) and the Command and Control Information Process System (C2IPS); Global Decision Support System (GDSS); and Theater Medical Information System (TMIS).

3.4 Arrange for Telecommunications

The project team will ensure that the telecommunications lines for system interfaces are available and satisfy information exchanges requirements.

3.5 Update Operational Procedures

The project team will establish and publish standardized procedures for TRAC2ES implementation. The procedures will address sending patient movement requests; manifesting patients, attendants, and equipment; and reporting bed status.

3.6 Train Operators

The project team will oversee development of a plan for training system operators.

3.7 Test, Modify, and Evaluate Systems

The project team will oversee the fielding of TRAC2ES, establish the telecommunications links, test the system at selected sites, and make any necessary system modifications. Testing will be accomplished in two phases. The first phase should consist of testing the system internally using sample data, evaluating the results, and then making appropriate modifications. In the second phase, system testing should use real data sent by a selected number of locations. During each phase, all system components – telecommunications, hardware/software, interface programs, and application systems – should be evaluated and modified as appropriate. Both phases should be repeated until the system passes all established testing criteria.

4.0 IMPLEMENT SYSTEM

Upon completion of testing, evaluation, and modification, the system transitions to a production environment.

Figure C-2 shows the schedule for implementing TRAC2ES to capture all patient movement data.

Major activity	Lead agent	Schedule						
		1993	1994	1995	1996	1997	1998	1999
1.0 Finalize functional requirements	USTRANSCOM							
2.0 Finalize technical operating requirements	USTRANSCOM							
3.0 Integrate and test TRAC2ES	USTRANSCOM							
4.0 Implement system	USTRANSCOM							

Project team leader — USTRANSCOM.

Figure C-2.
TRAC2ES Development and Implementation Schedule

GTN SYSTEM INTERFACES

As described in the operating concept in Chapter 3, the ITV module of GTN needs to interface with 13 systems before the DoD can achieve the required ITV. Figure C-3 identifies those systems and their anticipated GTN interface development schedule. The sequence of the interfaces is based upon the priorities assigned in Chapter 4. The estimated time for each interface, approximately one year, is based upon experience gained with the GTN Version 2 Prototype, where the contractor worked on three or more interfaces concurrently.

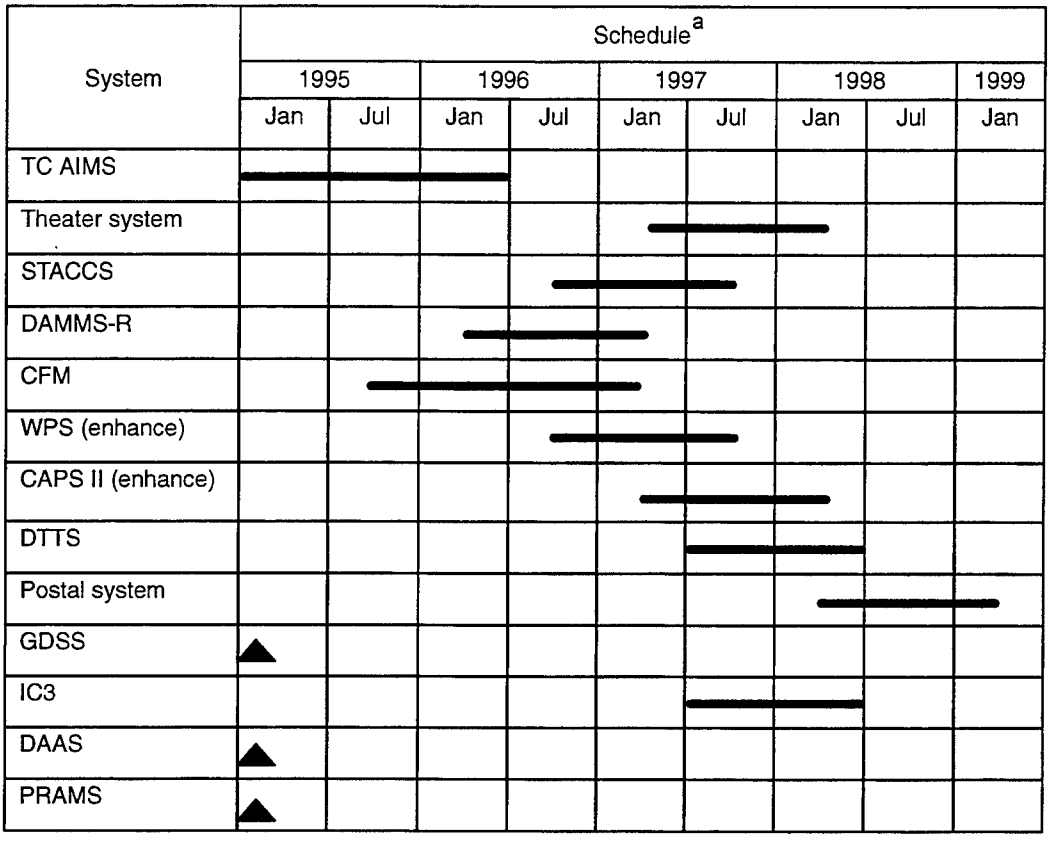
While the priorities and timelines for developing GTN system interfaces are based on reasonable assumptions and performance standards, each interface is unique, as discussed below.

- *TC AIMS.* The family of Transportation Coordinator's Automated Information for Movement Systems (TC AIMSs) – TC ACCIS, CMOS, LOGAIS/TC AIMS – will probably require separate interfaces with GTN. The GTN development effort for those interfaces could be simplified through the use of standard data elements, formats, and technical approaches. Therefore, this effort should require fewer resources than three unrelated system interfaces.

- *Future theater system.* The GTN interface with the DoD's new joint theater transportation system cannot be completed until that system is developed. In the interim, GTN will use information from Standard Theater Army Command and Control System (STACCS) and Department of the Army

Movements Management System – Redesigned (DAMMS-R) to provide partial theater ITV.

- *STACCS.* A GTN interface with STACCS could provide ITV information for Army unit movements in Europe in the near term. It will ultimately be replaced by the theater transportation system.



[a]Month in schedule column indicates a six-month period beginning with that month.

Figure C-3.
GTN Sytem Interfaces for ITV

- *DAMMS-R.* Like STACCS, DAMMS-R could provide GTN with partial theater cargo ITV information in the near term. It also will be replaced by the theater transportation system.

- *CFM.* The CONUS Freight Management (CFM) system will provide GTN with a myriad of CONUS transactions that contribute to ITV of non-unit cargo shipments. For this reason, the development of a GTN interface will likely require more than one year.

- *WPS.* An interface between the GTN prototype and the Worldwide Port System (WPS) already exists. In this task, the capabilities of that interface

will be expanded to include vendor, carrier status, and enhanced MILSTAMP data.

- *CAPS II.* An interface between the Consolidated Aerial Port System II (CAPS II) and the GTN prototype already exists. In this task, that interface will be expanded to include vendor and enhanced MILSTAMP data.

- *DTTS.* The DoD has two main alternative technical approaches for the interface between DTTS and GTN. The first would replicate the DTTS data base in GTN, and the second would use an on-line inquiry capability from GTN to DTTS for individual ordnance shipment tracking information. The technical approach that is chosen may change the proposed time line.

- *Postal System.* The interface between GTN and the U.S. Postal Service will not become a reality until the DoD develops procedures and tracking requirements for mail shipments, and the postal service develops a system capable of satisfying those procedures and requirements.

- *GDSS.* An interface between GDSS and the GTN prototype already exists. It will also be included in the GTN initial operating capability.

- *IC3.* The schedule for completing an interface between the Integrated Command, Control, and Communications System (IC3) and GTN depends on when the IC3 is completed.

- *DAAS.* An interface between the Defense Automated Addressing System (DAAS) and the GTN prototype already exists. It will also be included in the GTN initial operating capability.

- *PRAMS.* An interface between the Passenger Reservation and Manifesting System (PRAMS) and the GTN prototype already exists. It also be included in the GTN initial operating capability.

Other System Interfaces

Figure C-4 shows the schedule for 10 additional system interfaces that are required before the DoD can have a comprehensive ITV system. Three assumptions were used in establishing the timelines for those interfaces. First, the workloads for each system program office have been leveled so that no more than three interfaces occur simultaneously. Second, the timelines for developing the interfaces have been cross referenced to the implementation activities identified in Chapter 4 to ensure that all activities occur in the proper sequence. Third, like GTN, each interface will require one year to implement. Figure C-5 shows a likely set of activities and a timetable for accomplishing each interface.

System	Schedule [a]									
	1994	1995		1996		1997		1998		1999
	Jul	Jan	Jul	Jan	Jul	Jan	Jul	Jan	Jul	Jan
WPS – theater system										
CAPS II – theater system										
Commercial foreign carriers – theater system										
TC AIMS – CAPS II										
TC AIMS – CFM										
TC AIMS – WPS										
TC AIMS – TC AIMS										
PRAMS – service personnel systems										
PRAMS – commercial reservations systems										
PRAMS – TRAC2ES										

[a]Month in schedule columns indicates a six-month period beginning with that month.

Figure C-4.
Other ITV System Interfaces

Task	Month											
	1	2	3	4	5	6	7	8	9	10	11	12
Identify operating concept												
Detail data requirements												
Identify hardware/software specifications												
Identify communications strategy												
Develop interface requirements specifications												
Develop interface programs												
Install hardware and software												
Arrange for communications												
Test, evaluate, and modify interface												
Implement interface												

Figure C-5.
Typical Interface Timetable

ENHANCE SOURCE DATA

Table C-1 identifies nine opportunities for improving the access to ITV data. Many of those opportunities call for the use of EDI techniques to transmit data from a DoD or commercial source (usually in CONUS) to an intermediate data base. The detailed implementation plans for capitalizing upon these opportunities follow.

Implement EDI Capability at Defense Ordnance Shipping Activities

The CFM Field Module is currently testing the transmission of EDI-formatted shipment information to DTTS. Although the Army's Standard Depot System (SDS) intends to field an automated GBL preparation system using EDI techniques in March 1995, it cannot satisfy DTTS data requirements without additional funding. When fully operational, the CFM Field Module and other automated GBL systems are expected to process approximately 44,000 of an estimated 55,000 ordnance shipments each year. (The other ordnance shipments are addressed in the non-EDI capable shipping activities task.)

In the operating concept for EDI-capable ordnance shipping activities, the data are formatted using the ASC X12 858 Transaction Sets and transmitted to the CFM system for rating and routing under the Defense transportation electronic data interchange (DTEDI) program. The implementation plan for GBL shipments (Figure C-8 on page C-25) provides a detailed schedule for achieving ITV over these types of shipments.

Capture Ordnance Data from Non-EDI Shipping Activities; Expand DTTS to Other Modes

This task addresses the methods and procedures required for DTTS to receive ordnance shipment information, to include individual transportation control numbers (TCNs), from non-EDI capable CONUS and OCONUS shipping activities. Table C-4 lists the tasks for developing the methods and procedures at non-EDI capable shipping activities and for expanding DTTS mode surveillance in CONUS and OCONUS.

Table C-4.
Implementation Plan — Non-EDI Shipping Activities Ordnance Data Capture and DTTS Mode Expansion

1.0 Finalize functional requirements
1.1 Finalize operating concepts
1.2 Finalize data requirements
2.0 Specify operating requirements
2.1 Define system interfaces
2.2 Establish telecommunications strategy
2.3 Identify shipping activity and DTTS system modifications
2.4 Assess hardware and software requirements
2.5 Identify facility and personnel requirements
3.0 Integrate and test system
3.1 Procure required facility additions and employ personnel
3.2 Procure and install hardware and software
3.3 Modify applications systems
3.4 Develop system interfaces
3.5 Arrange for telecommunications
3.6 Update operating procedures
3.7 Train operators
3.8 Test, evaluate, and modify system
4.0 Field system

1.0 Finalize Functional Requirements

A project team comprised of USTRANSCOM, DTTS, Military Services, MTMC, and DLA representatives will finalize the operating concept and detail the data requirements.

1.1 Finalize Operating Concepts

The project team will review and finalize the operating concept for capturing ordnance shipment information from non-EDI capable shipping activities, CONUS rail and ocean carriers, and OCONUS motor, rail, and ocean carriers. Each operating concept must address the DTTS monitoring of all shipments.

1.2 Finalize Data Requirements

The project team will identify and document the data requirements needed to support the operational requirements identified in Subtask 1.1. It will also identify the data and transmission timing requirements for monitoring the

additional carriers associated with expanding system capability to other modes and to OCONUS shipments.

2.0 Specify Operating Requirements

After developing the functional requirements, the project team will define the system interfaces, identify the telecommunications requirements, determine application system modifications, and assess additional software requirements to accommodate the operating concepts finalized in Subtask 1.1.

2.1. Define System Interfaces

The project team will identify and define the system interfaces required by DTTS to satisfy both operating concepts.

2.2 Establish Telecommunications Strategy

The project team will formulate a communications strategy for receiving shipment information electronically from non-EDI capable shipping activities and for expanding DTTS to support other modes of transportation. It will also identify the resources required to implement those strategies.

2.3 Identify Shipping Activity and DTTS System Modifications

The project team will determine the system modifications needed in the shipping activity source systems and DTTS to accommodate the non-EDI shipping activities and DTTS mode expansion.

2.4 Assess Hardware and Software Requirements

The project team will assess the existing shipping activity's systems to determine if any additional hardware and software are required to support the non-EDI shipping activities, mode expansion, and DTTS central computer hardware and software to support those requirements.

2.5 Identify Facility and Personnel Requirements

The project team will identify any additional facility and personnel requirements.

3.0 Integrate and Test System

The project team will oversee the development, procurement, integration, and testing of hardware, software, telecommunications, and facilities. It will also update all operating procedures and train system operators.

3.1 Procure Required Facility Additions and Employ Personnel

The project team will oversee the procurement of additional facilities, if any, and the hiring of required personnel, as identified in Subtask 2.5.

3.2 Procure and Install Hardware and Software

The project team will coordinate the procurement and installation of the hardware and software needed to support the proposed operating concepts.

3.3 Modify Applications Systems

The project team will ensure that the system enhancements identified in Subtask 2.3 are developed in a timely and coordinated manner.

3.4 Develop System Interfaces

The project team will monitor development of the system interfaces defined in Subtask 2.1.

3.5 Arrange for Telecommunications

The project team will arrange for the telecommunications services identifies in Subtask 2.2 at all source shipping activity locations and DTTS.

3.6 Update Operating Procedures

The project team will ensure that DTTS personnel update the operating procedures consistent with the new operating concepts. Those procedures should address software operations, transmission times, customer service levels, backup routines, and business procedures.

3.7 Train Operators

The project team will formulate and oversee a comprehensive training program that includes basis communications and operating concepts and

responsibilities for ensuring the timely and accurate transmission of ordnance shipment data.

3.8 Test, Evaluate, and Modify System

The project team will evaluate and modify, as appropriate, all components of the entire system — telecommunications, hardware, software, interface programs, and applications systems.

4.0 Field System

Upon completion of testing, the project team will coordinate the transition of the operating concept to a production environment.

Implementation Schedule

Figure C-6 shows the schedule for capturing ordnance data from non-EDI shipping activities; and expanding DTTS surveillance to CONUS rail and ocean carriers, and OCONUS motor, rail, and ocean carriers.

Major activity	Lead agent	Schedule											
		1994		1995				1996				1997	
		Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Jul
1.0 Finalize functional requirements	DTTS PMO												
2.0 Specify operating requirements	DTTS PMO												
3.0 Integrate and test system	DTTS PMO												
4.0 Field system	DTTS PMO												

Project team leader — DTTS Program Management Office.

Note: Month in schedule column indicates a three-month period beginning with that month.

Figure C-6.
Implementation Schedule — Non-EDI Shipping Activities Ordnance Data Capture and DTTS Mode Expansion

Vendor

This section identifies the tasks and responsible activities for implementing the ITV operating concept for vendor shipments. Table C-5 lists the tasks that the DoD must accomplish to implement that concept. Those tasks are described in more detail below.

Table C-5.
Vendor Implementation Plan

1.0 Identify functional requirements
1.1 Assess alternative operating concepts
1.2 Select best concept
1.3 Detail data requirements
1.4 Identify and develop policy, regulation, and procedural changes
2.0 Review EDI standards and conventions
2.1 Map data requirements to ASC X12 858 Transaction Set
2.2 Modify the ASC X12 858 Transaction Set
2.3 Prepare data conventions
3.0 Specify technical operating requirements
3.1 Review and complete hardware specifications
3.2 Identify software requirements
3.3 Establish telecommunications strategy
4.0 Integrate and test system
4.1 Procure and install hardware and software
4.2 Modify application systems
4.3 Develop interface programs
4.4 Arrange for telecommunications
4.5 Update operating procedures
4.6 Train operators
4.7 Test, evaluate, and modify system
5.0 Establish trading partner relationships
5.1 Develop trading partner implementation strategy
5.2 Prepare and distribute trading partner information
5.3 Solicit trading partners and execute trading partner agreements
6.0 Implement production system

1.0 Identify Functional Requirements

In this task, a project team under the leadership of DLA with representative from USTRANSCOM, TCCs, Military Services, and Defense Logistics Management Systems Office (DLMSO), will review alternative operating concepts; select the best concept; detail the data requirements; and identify and develop policy, regulation, and procedural changes.

1.1 Assess Alternative Operating Concepts

The project team will review and assess alternative operating concepts for capturing vendor-generated shipping information. In making that review and

assessment, it will work closely with the procurement community and DLMSO's MILSCAP team to assess the feasibility of each alternative.

1.2 Select Best Concept

The project team will select the best operating concept, or combination of operating concepts, and then identify the DoD organizations responsible for receiving vendor-generated information.

1.3 Detail Data Requirements

The Military Services and DLA will identify and document all vendor-generated shipment information data requirements.

1.4 Identify and Develop Policy, Regulation, and Procedural Changes

The project team will review current policies, regulations, and procedures, such as MILSCAP and the Federal Acquisition Regulation (FAR), for purposes of identifying changes to those documents that will result in the DoD receiving the required ITV information.

2.0 Review EDI Standards and Conventions

USTRANSCOM will map vendor data requirements into the ASC X12 858 Transaction Set, modify the ASC X12 858 Transaction Set as required, and prepare data conventions.

2.1 Map Data Requirements to ASC X12 858 Transaction Set

In this subtask, USTRANSCOM maps the vendor data requirements (detailed in Subtask 1.3) into the ASC X12 858 Transaction Set.

2.2 Modify the ASC X12 858 Transaction Set

USTRANSCOM will work with the ASC X12 committee to modify the ASC X12 858 Transaction Set to accommodate the new data requirements identified in Subtask 1.3.

2.3 Prepare Data Conventions

USTRANSCOM will enhance the DoD data conventions for the ASC X12 858 Transaction Set to include new data requirements.

3.0 Specify Technical Operating Requirements

The DoD activities designated in Subtask 1.2 will identify the hardware, software, and telecommunications necessary to support the operating concept.

3.1 Review and Complete Hardware Specifications

The designated activities will examine the technical architecture and system throughput requirements to identify the hardware required to support the receipt of vendor-generated EDI shipment information.

3.2 Identify Software Requirements

The designated activities will determine the additional software and application system modifications required to support the planned operating concept.

3.3 Establish Telecommunications Strategy

DLA and the designated activities will develop a communications strategy for capturing vendor-generated data electronically.

4.0 Integrate and Test System

DLA and the designated activities will procure and install the hardware and software, modify the application systems, develop the interface programs, establish the telecommunications linkages, update the operating procedures, train the operators, and test the system.

4.1 Procure and Install Hardware and Software

The designated activities will procure and install the hardware and software needed to support the operating concept.

4.2 Modify Application Systems

The designated activities will modify their application systems as identified in Subtask 3.2. At a minimum, those modifications should include receiving and processing vendor-generated shipment data electronically and interfacing those systems with GTN.

4.3 Develop Interface Programs

The designated activities will develop a program to pass vendor-generated EDI data from the EDI translator to an application system.

4.4 Arrange for Telecommunications

The designated activities will arrange for the telecommunications capability identified in Subtask 3.3.

4.5 Update Operating Procedures

Building upon the operating concept identified in Subtask 1.2 and the revisions to procedures identified in Subtask 1.4, the designated activities will formulate detailed operating procedures for day-to-day operations. Those procedures should address software operation, transmission times, customer-service levels, backup routines, and business procedures.

4.6 Train Operators

DLA and the designated activities will formulate and oversee a comprehensive training program that includes an EDI overview, translation software operation, and new operating procedures to ensure the timely and accurate receipt and processing of vendor-generated data.

4.7 Test, Evaluate, and Modify System

The designated activities will field the EDI-technical configuration, establish telecommunications links, test the system at selected sites, and make any necessary system modifications. They should carry out testing in two phases. First, they should test the system internally using sample data, evaluate the results, and make appropriate modifications. In the second phase, they should test the system using real data sent by a selected number of vendors. They should then evaluate and modify, as appropriate, every component of the entire system – telecommunications, hardware, translation software, interface programs, and application systems. Both phases should be repeated until the system passes all testing criteria.

5.0 Establish Trading Partner Relationships

Following successful system testing, DLA will formulate a strategy for soliciting and working with trading partners (commercial vendors and carriers.) The strategy should include development of an information package and procedures for encouraging industry participation.

5.1 Develop Trading Partner Implementation Strategy

DLA will develop a strategy for establishing EDI capabilities with its industry trading partners. The strategy should address the pace of implementation, milestones, and methods of operation for both DoD and commercial vendor trading partners.

5.2 Prepare and Distribute Trading Partner Information

DLA will prepare an information package for all prospective trading partners. That package should contain such information as implementation procedures, operating concepts, EDI passwords and codes, points of contact, and EDI trading partner agreements. It should also include the implementation guidelines developed in Subtask 2.3.

5.3 Solicit Trading Partners and Execute Trading Partner Agreements

Using the products of Subtasks 5.1 and 5.2, DLA will solicit trading partners to participate in its EDI program and prepare the necessary trading partner agreements.

6.0 IMPLEMENT PRODUCTION SYSTEM

Once testing is completed and all trading partners are ready to receive and send ITV information electronically, the program will move into a production environment.

IMPLEMENTATION SCHEDULE

Figure C-7 shows the schedule for implementing the ASC X12 transaction sets for receiving vendor-generated data. If it adheres to this schedule, the DoD should have a timely and comprehensive flow of vendor-generated data to GTN.

Government Bill of Lading

The DTEDI program is well underway toward replacing the GBL and other routine freight and personal property payment documents with electronic transactions. With an EDI infrastructure at CONUS shipping activities, DoD will be able to capture much of the CONUS source data needed for ITV by interfacing GTN with the CFM system.

Major activity	Lead agent	Schedule										
		1995				1996				1997		
		Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul
1.0 Identify functional requirements	DLA											
2.0 Review EDI standards and conventions	USTRANSCOM											
3.0 Specify technical operating requirements	DLA											
4.0 Integrate and test system	DLA											
5.0 Establish trading partner relationships	DLA											
6.0 Implement production system	DLA											

Project team leader — DLA.

Note: Month in schedule column indicates a three-month period beginning with that month.

Figure C-7.
Vendor Implementation Schedule

This section presents an implementation plan for capturing GBL data at CONUS shipping activities that use the following origin systems: Cargo Movements Operations System (CMOS); CFM Field Module; Transportation Coordinator's Automated Command and Control Information System (TC ACCIS); Transportation Management System (TMS); Defense Subsistence Officer Automated Transportation System (DSOATS); Transportation Automated Management System (TRAMS); Defense Warehousing and Shipping Procedures (DWASP); Stock Control and Distribution (SC&D); Navy Automated Transportation and Documentation System (NAVADS); Standard Depot System (SDS); and Distribution Standard System (DSS). Figure C-8 shows the number of DoD shipping activities currently using each system and the scheduled start and end dates for implementing EDI at all activities. The current status of each system is described below.

CMOS

The initial testing of CMOS began late in calendar year 1993. Twelve activities are now using CMOS to send electronic GBL information to the CFM system. The Air Force plans to have 100 activities using CMOS to pass GBL data electronically to the CFM system by the end of calendar year 1994, with another 100 activities by the end of calendar year 1996.

CONUS origin system	Number of activities	Schedule											
		1994				1995				1996			
		Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct
CMOS	200	←	—	—									
CFM Field Module	264		→	→	→	→	→	→					
TC-ACCIS	42			→	→	→							
TMS	11	EDI implementation complete											
DSOATS	22	(Currently no plans to field EDI capability; may get rolled into TRAMS)											
TRAMS	33	→	→	→									
DWASP	6	←	—										
SC&D	5	Legacy system (no EDI capability planned)											
NAVADS	8	Legacy system (no EDI capability planned)											
SDS	23		→	→	→	→							
DSS	*(30)			→	→								
Total	614												

Legend:

→ = Implementation has no end date projected.

← = Implementation started prior to calendar year 1994.

* DSS activities already counted as legacy system activities (SDS, SC&D, NAVADS, and TMS).

Note: Month in schedule column indicates a three-month period beginning with that month; DSS activities already counted as other legacy system activities.

Figure C-8.
GBL Implementation Schedule

CFM Field Module

Currently, over 100 activities have completed testing and are using the CFM Field Module. The remaining activities are projected to be operational during FY95.

TC ACCIS

Forty two TC ACCIS activities are scheduled to begin testing the use of EDI to transmit GBL data to the CFM system in March 1995. The completion date for that testing has not been finalized.

TMS

The Marine Corps completed the fielding of TMS in November 1990. That system now exchanges ASC X12 858 Transaction Set data among Marine Corps Transportation Management Offices (TMOs) on a daily basis. The TMOs have the capability to transmit and receive all EDI transactions with carriers, MTMC,

other DoD consignees, and DoD payment centers. However, they have not established a connection to DoD's commercial EDI value-added network (VAN) services.

DSOATS

DLA has no plans to incorporate an EDI capability into DSOATS. However, DSOATS is being incorporated into TRAMS, which has an EDI capability.

TRAMS

DLA's contract management activities began using TRAMS to send EDI transmissions of GBL data to the CFM system in February 1994. Those activities will ultimately exchange electronic data with approximately 600 commercial vendors by the end of FY96.

DWASP

DLA's six original depots began using DWASP to send EDI transmissions of GBL data to the CFM system in the middle of 1994.

SC&D/NAVADS

The SC&D and NAVADS systems have no plans to implement EDI because they are legacy systems.

SDS

The Army will begin testing the capability of SDS to send GBL data electronically to the CFM system at 23 activities on 24 January 1995. Although the Army has not yet established a firm implementation date for SDS at those activities, it is scheduled to field an EDI capability at one of three data processing centers, Chambersburg, PA, on 24 March 1995. Those centers are being established to service the 23 activities. Once fielding is complete at the three centers, the 23 SDS activities will then become operational.

DSS

DLA is replacing the distribution systems at its 30 depots with DSS. Some of the depots that currently use either DWASP, SC&D, NAVADS, TMS, or SDS began sending electronic transmissions of GBL data to the CFM system in 1994. However, DLA has not yet determined when DSS will be implemented at all of its depots.

Commercial Bill of Lading/Small Parcel

As the DoD implements its EDI program for capturing GBL information, it will also be establishing an infrastructure for supporting the capture of CBL information using EDI techniques. Nonetheless, the DoD still has a number of tasks associated with capturing CBL and small parcel shipment information. This plan identifies those tasks (see Table C-6) and the organizations responsible for accomplishing them, and presents an implementation schedule. Each task is described in more detail below.

Table C-6.
CBL/Small Parcel Implementation Plan

1.0 Develop functional requirements
1.1 Finalize operating concept
1.2 Detail data requirements
1.3 Identify and resolve business and legal issues
2.0 Review EDI standards and conventions
2.1 Map data requirements to ASC X12 858Transaction Set
2.2 Modify ASC X12 858 Transaction Set
2.3 Prepare data conventions
3.0 Specify technical operating requirements
3.1 Review and complete hardware specifications
3.2 Identify software requirements
3.3 Establish telecommunications strategy
4.0 Integrate and test system
4.1 Procure and install hardware and software
4.2 Modify application systems
4.3 Develop interface programs
4.4 Arrange for telecommunications
4.5 Update operating procedures
4.6 Train operators
4.7 Test, evaluate, and modify system
5.0 Implement production system

1.0 Develop Functional Requirements

Under the overall leadership of USTRANSCOM, a project team consisting of representatives from USTRANSCOM, TCCs, Military Services, and DLA will review and finalize the ITV operating concept, detail the data requirements, determine application system modifications or develop a new system to satisfy the operating concept and data requirements, and identify and resolve any business and legal issues.

1.1 Finalize Operating Concept

The project team will review and finalize the ITV operating concept for capturing CBL and small parcel shipment information.

1.2 Detail Data Requirements

The project team will identify and document the CBL and small parcel shipment information data requirements.

1.3 Identify and Resolve Business and Legal Issues

The project team will identify and resolve all business and legal issues associated with implementing EDI for CBL and small parcel shipments. These actions will likely include modifying existing or developing new Defense transportation and accounting procedures.

2.0 Review EDI Standards and Conventions

USTRANSCOM will map the CBL and small parcel data requirements to the ASC X12 858 Transaction Set, modify the ASC X12 858 Transaction Set to accommodate CBL requirements, and prepare data conventions.

2.1 Map Data Requirements to ASC X12 858 Transaction Set

USTRANSCOM will map the CBL and small parcel data requirements (detailed in Subtask 1.2) into the ASC X12 858 Transaction Set following established conventions for GBL data.

2.2 Modify ASC X12 858 Transaction Set

USTRANSCOM will work with the ASC X12 committee to modify the existing ASC X12 858 Transaction Set as required to accommodate any additional data requirements identified in Subtask 1.2.

2.3 Prepare Data Conventions

USTRANSCOM will expand the DoD data conventions for the ASC X12 858 Transaction Set to include any new CBL and small parcel data requirements.

3.0 Specify Technical Operating Requirements

The Military Service and DLA shipping activities will identify the hardware, software, and telecommunications requirements to accommodate the operating concept and data requirements.

3.1 Review and Complete Hardware Specifications

The Military Service and DLA shipping activities will examine the technical architecture and expected system throughput to determine the hardware requirements needed to support the electronic processing of CBL and small parcel shipment information.

3.2 Identify Software Requirements

The Military Service and DLA shipping activities will determine all additional software and application systems modifications required to support the electronic processing of CBL and small parcel shipment information.

3.3 Establish Telecommunications Strategy

USTRANSCOM will develop a telecommunications strategy to support the electronic transmission of CBL and small parcel shipment data from Defense shipping activities to MTMC's CFM system. That strategy will rely on the telecommunications network used to support GBL processing. USTRANSCOM will also identify the resource requirements for expanding that network to CBL data.

4.0 Integrate and Test System

The Military Service and DLA shipping activities will procure and install the necessary hardware and software, modify application systems, develop interface programs, establish telecommunications, update operating procedures, train operators, and test the system.

4.1 Procure and Install Hardware and Software

The Military Service and DLA shipping activities will procure and install the hardware and software identified in Subtasks 3.1 and 3.2.

4.2 Modify Application Systems

The Military Service and DLA shipping activities will modify their application systems as identified in Subtask 3.2. At a minimum, those modifications

will include the capability to generate electronic CBL and small parcel shipment data, and other enhancements necessary to complete an interface between the EDI translator and the application system.

4.3 Develop Interface Programs

The Military Service and DLA shipping activities will develop a program to pass CBL and small parcel EDI data from their application system to the EDI translator. The shippers should use the existing program for GBL data, if possible.

4.4 Arrange for Telecommunications

The Military Service and DLA shipping activities will arrange for the telecommunications capability identified in Subtask 3.3.

4.5 Update Operating Procedures

Building upon the operating concept finalized in Subtask 1.1, and using the existing procedures for GBL shipments, Defense shipping activities will formulate detailed operating procedures for day-to-day operations. Those procedures should address software operations, transmission times, customer service levels, backup routines, and business procedures.

4.6 Train Operators

The project team will initiate the training of system operators building upon the DoD's experience in training operators to support GBL processing.

4.7 Test, Evaluate, and Modify System

The Military Service and DLA shipping activities, and the CFM Program Management Office will field the EDI technical configuration, establish telecommunications links, test the system at selected sites, and make any necessary system modifications. All system testing should be carried out in two phases. First, they should test the system internally using sample data, evaluate the results, and make appropriate modifications. In the second phase, they should test the system using real data. Each component of the entire system – telecommunications, hardware, translation software, interface programs, and application systems – should be evaluated and modified as appropriate. Both phases should be repeated until the system passes all testing criteria.

5.0 Implement Production System

Once it has completed testing and all system modifications, the program will move into a production environment.

Implementation Schedule

Figure C-9 shows the schedule for implementing the ASC X12 858 Transaction Set for exchanging CBL and small parcel shipment data. If it adheres to this schedule, DoD should have a timely and comprehensive flow of CBL and small parcel shipment information into the CFM system and GTN.

Major activity	Lead agent	Schedule					
		1995				1996	
		Jan	Apr	Jul	Oct	Jan	Apr
1.0 Develop functional requirements	USTRANSCOM						
2.0 Review EDI standards and conventions	USTRANSCOM						
3.0 Specify technical operating requirements	Military Services, DLA						
4.0 Integrate and test system	MTMC, Military Services, DLA						
5.0 Implement production system	MTMC, Military Services, DLA						▲

Project team leader — USTRANSCOM.

Note: Month in schedule column indicates a three-month period beginning with that month.

Figure C-9.
CBL/Small Parcel Implementation Schedule

Carrier Status Data

This section identifies the tasks, responsible activities, and schedule for expanding the capability of the CFM system and WPS to receive carrier-generated status messages electronically. Table C-7 lists the tasks associated with this effort. Each task is described in more detail below.

Table C-7.
Carrier Status Data Implementation Plan

1.0 Finalize functional requirements
1.1 Finalize operating concept
1.2 Detail data requirements
2.0 Migrate to EDI standards
2.1 Map data requirements to ASC X12 transaction sets
2.2 Modify ASC X12 transaction sets
2.3 Prepare data conventions
3.0 Specify technical operating requirements
3.1 Identify hardware and software requirements
3.2 Establish telecommunications strategy
4.0 Integrate and test system
4.1 Procure and install hardware and software
4.2 Modify application systems
4.3 Develop EDI interface programs
4.4 Arrange for telecommunications
4.5 Update operating procedures
4.6 Train operators
4.7 Test, evaluate, and modify system
5.0 Establish trading partner relationships
5.1 Develop trading partner implementation strategy
5.2 Prepare and distribute trading partner information
5.3 Solicit trading partners and execute trading partner agreements
6.0 Implement production system

1.0 Finalize Functional Requirements

Under the leadership of USTRANSCOM, a project team consisting of USTRANSCOM, MTMC, and commercial carrier representatives will finalize the ITV operating concept and detail the data requirements.

1.1 Finalize Operating Concept

The project team will review and finalize the operating concept for receiving carrier status messages electronically.

1.2 Detail Data Requirements

The project team will identify and document the carrier status message data requirements.

2.0 Migrate to EDI Standards

USTRANSCOM will map the carrier status data requirements to the appropriate ASC X12 transaction set; modify those standards, as required; and prepare data conventions.

2.1 Map Data Requirements to ASC X12 Transaction Sets

USTRANSCOM will map the carrier status data requirements (detailed in Subtask 1.2) to the ASC X12 214 and 315 Transaction Sets.

2.2 Modify ASC X12 Transaction Sets

USTRANSCOM will determine if the ASC X12 transaction sets can accommodate the data requirements specified in Subtask 1.2. If not, USTRANSCOM will work with the ASC X12 committee to modify the transaction sets.

2.3 Prepare Data Conventions

USTRANSCOM will prepare the DoD data conventions for each of the ASC X12 transaction sets.

3.0 Specify Technical Operating Requirements

The project team will identify the hardware, software, and telecommunications requirements to accommodate the operating concept.

3.1 Identify Hardware and Software Requirements

MTMC will assess its existing systems to determine any additional hardware, software, and application system modifications required to support the operating concept.

3.2 Establish Telecommunications Strategy

USTRANSCOM and MTMC will develop a strategy for receiving shipment status data electronically from commercial carriers and identify the resources required to implement the strategy.

4.0 Integrate and Test System

The project team will procure and install the EDI status message system, develop EDI interface programs, establish telecommunications links, update operating procedures, train operators, test the system, and make any necessary system modifications.

4.1 Procure and Install Hardware and Software

MTMC will procure and install the hardware and software needed to support the operating concept.

4.2 Modify Application Systems

MTMC will modify its application systems as identified in Subtask 3.1. At a minimum, those modifications should include the capability for the CFM system and WPS to receive and process ASC X12 status messages.

4.3 Develop EDI Interface Programs

MTMC will develop the interface programs that format and pass status message data between the CFM and WPS application systems and the EDI translation software.

4.4 Arrange for Telecommunications

MTMC will arrange for the telecommunications capability identified in Subtask 3.2.

4.5 Update Operating Procedures

Building upon the operating concepts developed in Subtask 1.1, MTMC will formulate detailed operating procedures for day-to-day EDI operations. Those procedures should address software operations, transmission times, customer service levels, backup routines, and business procedures.

4.6 Train Operators

USTRANSCOM and MTMC will formulate and oversee a comprehensive training program that includes an EDI overview, translation software operation, and new operating procedures to ensure the timely and accurate transmission of carrier status data.

4.7 Test, Evaluate, and Modify System

The project team will field the EDI technical configuration, establish telecommunications links, test the system at selected sites, and make any necessary system modifications. The team should carry out the testing in two phases. First, it should test the system internally using sample data, evaluate the results, and make appropriate modifications. In the second phase, the project team should test the system using data sent by a selected number of commercial carriers. Every component of the entire system – telecommunications, translation software, interface programs, and applications systems – should be exercised in this phase, and then modified as appropriate. Both phases should be repeated until the system passes all testing criteria.

5.0 Establish Trading Partner Relationships

USTRANSCOM and MTMC will formulate a strategy for soliciting and working with commercial carrier trading partners. The strategy should include development of an information package and procedures for encouraging industry participation.

5.1 Develop Trading Partner Implementation Strategy

USTRANSCOM and MTMC will develop a strategy for establishing EDI capabilities with industry trading partners. The strategy should address the pace of implementation, milestones, and operating methods for commercial carrier trading partners.

5.2 Prepare and Distribute Trading Partner Information

USTRANSCOM and MTMC will prepare an information package for all prospective trading partners. That package should contain such information as implementation procedures, operating concepts, EDI passwords and codes, points of contact, and EDI trading partner agreements. It should also include the implementation guidelines developed in Subtask 2.3.

5.3 Solicit Trading Partners and Execute Trading Partner Agreements

Using the products of Subtask 5.1 and 5.2, USTRANSCOM and MTMC will solicit trading partners to participate in the DoD's EDI program and prepare the necessary trading partner agreements.

6.0 Implement Production System

Once it has completed testing and system modifications, the program will move into a production environment.

Implementation Schedule

Figure C-10 shows the schedule for implementing the use of ASC X12 transaction sets for exchanging carrier status data.

Major activity	Lead agent	Schedule				
		1995				1996
		Jan	Apr	Jul	Oct	Jan
1.0 Finalize functional requirements	MTMC					
2.0 Migrate to EDI standards	USTRANSCOM					
3.0 Specify technical operating requirements	MTMC					
4.0 Integrate and test system	MTMC					
5.0 Establish trading partner relationships	MTMC					
6.0 Implement production system	MTMC					

Project team leader — USTRANSCOM.

Note: Month in schedule column indicates a three-month period beginning with that month.

Figure C-10.
Carrier Status Implementation Schedule

Standard Automated Input Media Device

The SAIMD includes the Army's Soldier Readiness Card (SRC) and the Multitechnology Automated Reader Card (MARC). This section presents a plan, including tasks, responsible activities, and schedules, for fielding the SAIMDs. A project team under the leadership of the Joint Staff (J-4) and consisting of Under

Secretary of Defense (Personnel and Readiness); Assistant Secretary of Defense (Health Affairs); Assistant Secretary of Defense (C^3I); USTRANSCOM; CINCs; and Military Service representatives will perform the tasks identified in Table C-8.

Table C-8.
SAIMD Implementation Plan

1.0 Gather data
2.0 Finalize functional requirements
2.1 Finalize operating concept
2.2 Finalize data requirements
2.3 Apply IDEF modeling and determine system modifications
3.0 Demonstrate existing technologies and capabilities
4.0 Test, evaluate, and modify devices
4.1 Procure and install hardware and software
4.2 Modify application systems and develop interface programs
4.3 Test, evaluate, and modify system
5.0 Field system

1.0 Gather Data

The project team will review SAIMD technical documentation and perform a background analysis and literature review.

2.0 Finalize Functional Requirements

The project team will finalize the operating concept and data requirements, apply Integrated Definition Language (IDEF) modeling and identify the modifications that must be applied to supporting systems.

2.1 Finalize Operating Concept

The project team will review and finalize the operating concept for tracking personnel/patients from origin to destination, and ensure that the card is usable in both mature and immature theaters. The card should be capable of being read by strategic and theater systems supporting ports, personnel processing centers, and medical treatment facilities.

2.2 Finalize Data Requirements

The project team will identify and document the personnel accountability, passenger manifesting, and medical processing data elements needed to accommodate the operating concept. It will also ensure that the users employ the same data elements for all systems to provide a seamless interface.

2.3 Apply IDEF Modeling and Determine System Modifications

The project team will apply IDEF modeling to each functional area and determine the system modifications necessary to accommodate the operating concept and data requirements specified in Subtasks 2.1 and 2.2.

3.0 Demonstrate Existing Technologies and Capabilities

The project team will coordinate and oversee the demonstrations of existing SAIMD technology to personnel and patient processing, and to passenger manifesting. It will also select the system hardware and software for use in the theater proof-of-concept test.

4.0 Test, Evaluate, and Modify Devices

The project team will oversee the procurement, modification, development, testing, and integration of SAIMD devices at selected test sites.

4.1 Procure and Install Hardware and Software

The project team will ensure that the hardware and software identified in Task 3.0 are procured and installed at test locations.

4.2 Modify Application Systems and Develop Interface Programs

The project team will direct and ensure that all application system modifications are accomplished in every system that will be using the SAIMD. Those modifications will include all interface programs developed to pass personnel, passenger manifest, and medical data between the systems.

4.3 Test, Evaluate, and Modify System

The project team will coordinate system testing and system modifications at selected sites, test the systems using selected cards and readers containing standardized data with emphasis on joint operations, and then test the quality and

timeliness of data passed into the personnel, passenger manifesting and medical systems. Every component of the system should be exercised during those tests.

5.0 Field System

Upon completion of testing and modification, OSD will designate a Military Service or Defense agency to procure the hardware and field the system.

Implementation Schedule

Figure C-11 shows the schedule for implementing the operating concept for tracking personnel, passenger manifesting, and medical processing using the SAIMD.

Major activity	Lead agent	Schedule							
		1995				1996			
		Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct
1.0 Gather data	Joint Staff J-4								
2.0 Finalize functional requirements	Joint Staff J-4								
3.0 Demonstrate existing technologies and capabilities	Joint Staff J-4								
4.0 Test, evaluate, and modify devices	Joint Staff J-4								
5.0 Field system	Joint Staff J-4								

Project team leader — Joint Staff (J-4).

Note: Month in schedule indicates a three-month period beginning with that month.

Figure C-11.
SAIMD Implementation Schedule

MILSTAMP

This implementation plan identifies the tasks, responsible activities, and schedules for enhancing MILSTAMP to meet ITV requirements. Table C-9 lists the tasks associated with that effort. Each task is described in more detail below.

Table C-9.
MILSTAMP Implementation Plan

1.0 Finalize functional requirements
1.1 Finalize operating concept
1.2 Detail data requirements
2.0 Migrate to EDI standards
2.1 Map MILSTAMP and ITV data requirements to ASC X12 858 Transaction Set
2.2 Modify ASC X12 858 Transaction Set
2.3 Prepare data conventions
3.0 Specify technical operating requirements
3.1 Identify hardware and software requirements
3.2 Establish communications strategy
4.0 Integrate and test systems
4.1 Procure and install hardware and software
4.2 Modify application systems
4.3 Develop EDI interface programs
4.4 Arrange for telecommunications
4.5 Update operating procedures
4.6 Train operators
4.7 Test, evaluate, and modify system
5.0 Modify TCC systems and GTN interfaces
6.0 Implement production system

1.0 Finalize Functional Requirements

A project team under USTRANSCOM leadership and comprising representatives from the Military Services; DLA; TCCs; and Defense Logistics Management Systems Office (DLMSO) will finalize the ITV operating concept and detail the associated data requirements.

1.1 Finalize Operating Concept

The project team will review and finalize the operating concept for capturing TCMD data generated by the Military Service and DLA systems. That operating concept should use the ASC X12 858 Transaction Set to transmit source information currently not captured in MILSTAMP to WPS and HOST for subsequent uploading to GTN.

1.2 Detail Data Requirements

The project team will identify and document the ITV data requirements. Currently, MILSTAMP does not provide information about the origin to port segment of Defense shipments.

2.0 Migrate to EDI Standards

DLMSO and USTRANSCOM will map the DoD's ITV data requirements to the ASC X12 858 Transaction Set, modify the ASC X12 858, and prepare the required data conventions.

2.1 Map MILSTAMP and ITV Data Requirements to ASC X12 858 Transaction Set

DLMSO and USTRANSCOM will map the data requirements detailed in Subtask 1.2 into the ASC X12 858 Transaction Set.

2.2 Modify ASC X12 858 Transaction Set

DLMSO and USTRANSCOM will determine if the ASC X12 858 Transaction Set can accommodate the data requirements specified in Subtask 1.2. If not, then DLMSO and USTRANSCOM should work with the ASC X12 committee to modify the 858 Transaction Set.

2.3 Prepare Data Conventions

DLMSO and USTRANSCOM will prepare a MILSTAMP data convention for the ASC X12 858 Transaction Set.

3.0 Specify Technical Operating Requirements

Military Services, DLA, and TCCs will identify the hardware, software, and telecommunications requirements to accommodate the operating concept.

3.1 Identify Hardware and Software Requirements

Military Services, DLA, and TCCs will assess their systems to determine if any additional hardware, software, or application system modifications are required to support the operating concept. They will also identify any resource shortfalls.

3.2 Establish Communications Strategy

The project team will develop a communications strategy for exchanging MILSTAMP source data electronically with clearance authority and TCC systems.

4.0 Integrate and Test Systems

Military Services, DLA, MTMC, and Air Mobility Command (AMC) will field their EDI system; modify application systems; develop any EDI interface programs; update procedures; train operators; establish telecommunications links; and test, evaluate, and modify the system.

4.1 Procure and Install Hardware and Software

Military Services, DLA, MTMC, and AMC will procure and install the hardware and software needed to support the ITV operating concept.

4.2 Modify Application Systems

Military Services, DLA, MTMC, and AMC will modify their application systems as identified in Subtask 3.1.

4.3 Develop EDI Interface Programs

Military Services, DLA, MTMC, and AMC will develop the interface programs that format and pass data between their application systems and the EDI translation software.

4.4 Arrange for Telecommunications

Military Services, DLA, MTMC, and AMC will arrange for the appropriate telecommunications at all locations, as called for in Subtask 3.2.

4.5 Update Operating Procedures

DLMSO and USTRANSCOM will update the current MILSTAMP and other transportation procedures to ensure the timely, accurate, and complete transmission of ATCMD data.

4.6 Train Operators

The team will formulate and oversee a comprehensive training program that addresses basic EDI concepts, translation software operation, and local operating procedures.

4.7 Test, Evaluate, and Modify System

The project team will field the EDI technical configuration at source, clearance, and port systems; establish telecommunications links; test the system at selected sites; and make any necessary system modifications. Testing should occur in two phases. First, the team should test the system internally using sample data, evaluate the results, and make appropriate modifications. In the second phase, the team should test the system using data sent by selected source activities. All testing should be conducted in parallel with existing MILSTAMP data flows. Each component of the entire system — telecommunications, translation software, interface programs, and applications systems — should be evaluated and modified as appropriate. Both phases should be repeated until the system passes all testing criteria.

5.0 Modify TCC Systems and GTN Interfaces

USTRANSCOM, MTMC, and AMC will modify their systems and GTN interfaces to ensure timely and efficient information exchange.

6.0 Implement Production System

Once it has completed testing and system modifications, the DoD will move into a production environment.

Implementation Schedule

Figure C-12 shows the schedule for capturing enhanced MILSTAMP data. If it adheres to this schedule, the DoD should have a timely and comprehensive flow of ATCMD data from origin to port to GTN.

Major activity	Lead agent	Schedule									
		1995				1996				1997	
		Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr
1.0 Finalize functional requirements	DLMSO										
2.0 Migrate to EDI standards	DLMSO										
3.0 Specify technical operating requirements	Military Services, DLA										
4.0 Integrate and test systems	Military Services, DLA										
5.0 Modify TCC systems and GTN interfaces	MTMC, AMC, USTRANSCOM										
6.0 Implement production system	USTRANSCOM										▲

Project team leader — USTRANSCOM.

Note: Month in schedule column indicates a three-month period beginning with that month.

Figure C-12.
MILSTAMP Implementation Schedule

Personal Property

As noted in Chapter 4, EDI offers an additional opportunity to enhance the visibility currently enjoyed by personal property shipments. Electronic status messages for selected types or categories of shipments, when transmitted from carriers to personal property shipping offices (PPSOs), could

- enhance the level and quality of service,
- reduce DoD and carrier costs associated with shipment tracing, and
- provide information useful to property owners.

This section identifies the tasks that the Military Services, MTMC, and the Transportation Operational Personal Property Standard System (TOPS) project manager must complete to implement the shipment status reporting process. It also proposes a schedule for the accomplishment of each task. Table C-10 shows those tasks. They are described in more detail below.

1.0 Define Functional and Reporting Requirements

In this task a project team lead by MTMC, in coordination with the Military Services, will identify the types of shipments for which carriers will be asked to provide status messages. It will also determine when the status messages should be requested, the carriers that will be asked to send messages, the frequency of messages, the required data elements, and the message format.

Table C-10.
Personal Property Implementation Plan

1.0 Define functional and reporting requirements
1.1 Identify shipments requiring status reports
1.2 Determine time after pickup that reporting begins
1.3 Identify carriers required to report shipment status
1.4 Determine frequency of messages
1.5 Identify data elements
1.6 Prescribe message format
2.0 Define technical requirements
2.1 Determine hardware, software, and programming changes
2.2 Identify facility and personnel requirements
3.0 Integrate and test system
3.1 Procure and install hardware and software
3.2 Modify applications systems
3.3 Develop interface programs
3.4 Update operating procedures
3.5 Train operators
3.6 Test, evaluate, and modify system
4.0 Document shipment status reporting requirements
5.0 Coordinate proposed changes
6.0 Coordinate reporting requirements with industry
7.0 Publicize proposed changes
8.0 Publish changes

1.1 Identify Shipments Requiring Status Reports

The project team will identify the shipments, by code of service, that would benefit most from status messages. In identifying those shipments, it should consider status messages for:

- All surface international shipments provided upon PPSO inquiry (international shipments transit the most nodes and require the most handling, thereby providing increased opportunities for loss, damage, delays, and misroutings).

- All Blue Bark shipments provided automatically; PPSOs should not first transmit an inquiry.

1.2 Determine Time after Pickup that Reporting Begins

The project team will determine when shipment status updates are most beneficial. It should consider requiring status messages on selected international shipments upon request from a PPSO when

- ocean transport commences,
- ocean transport is completed, and
- the shipment has not been or cannot be delivered by the required delivery date (RDD).

Carriers should automatically transmit Blue Bark shipment status messages to origin and destination PPSOs upon the occurrence of those same events without prompting or inquiry from PPSOs.

1.3 Identify Carriers Required to Report Shipment Status

The project team will require all EDI-capable carriers, and those willing to attain that capability in the near term, to provide electronic shipment status messages. It will further encourage those carriers not currently EDI-capable to attain that capability. Until then, it will require all carriers without the capability to send shipment status messages electronically to provide shipment status information via facsimile, telephone, or some other means of responsive communications.

1.4 Determine Frequency of Messages

The project team will determine the frequency of status reports on late shipments to the destination PPSO. Status reports should be considered immediately after the RDD has passed and every 24 hours thereafter until shipment delivery. Although the first report for non-Blue Bark shipments should be provided in response to a PPSO's request, the follow-up (every 24 hours) reports are provided without further inquiry from a PPSO.

1.5 Identify Data Elements

The project team will identify the data elements that are to comprise each status message. The project team should consider three messages. The first would be sent when ocean transit begins, and the second when ocean transit ends. The data in those two messages should consist of the member's name, rank, social security number, GBL number, RDD, standard carrier alpha code, origin and destination government bill of lading office code, code of shipment, SPOE, SPOD, vessel name, date and time of sailing, and date and time of arrival at the POD. The third message would be sent when a shipment fails to meet its

RDD. In that message only the member's name, rank, social security number, GBL number, original RDD, and anticipated revised RDD need to be provided.

1.6 Prescribe Message Format

The project team will select the formats for the inquiry and status report messages that are acceptable to both carriers and PPSOs. Messages transmitted via EDI should employ the ASC X12 213 Transaction Set for PPSO inquiries and ASC X12 214 Transaction Set for carrier status reports. All non-EDI messages should also be prepared following a standard format.

2.0 Define Technical Requirements

Following identification of the functional reporting requirements, the project team will address the hardware, software, facility, and manpower requirements.

2.1 Determine Hardware, Software, and Programming Changes

The project team will determine, in coordination with carrier and PPSO representatives, all hardware, software, and translation software changes or upgrades needed to accommodate PPSO inquiry and carrier status messages.

2.2 Identify Facility and Personnel Requirements

The project team will identify the facilities (such as telephone lines, electrical outlets, and office space) to accommodate all required changes and upgrades. It will also survey the carriers and PPSOs to determine the availability of personnel and the training needed to provide shipment inquiry and status reporting.

3.0 Integrate and Test System

This task involves all efforts related to fielding new, or upgrading existing, EDI capabilities.

3.1 Procure and Install Hardware and Software

The project team will coordinate the procurement and installation of the hardware and software specified in Subtask 2.1.

3.2 Modify Applications Systems

The project team will oversee all enhancements to application systems to accommodate shipment inquiry and status messages in EDI format, and to make maximum use of the information provided.

3.3 Develop Interface Programs

The project team will define the formats for passing inquiry and status message data between applications systems and the EDI translation software.

3.4 Update Operating Procedures

The project team will formulate detailed operating procedures for day-to-day EDI operations and submit those procedures to the Military Services so that they can review their internal operating procedures for manually processing documents. It will also link those procedures to the new inquiry and reporting requirement.

3.5 Train Operators

The project team will formulate programs for training system operators and users.

3.6 Test, Evaluate, and Modify System

The project team will oversee EDI system testing using sample data, evaluate the results, and make appropriate modifications. It will also conduct an operational test using actual data generated by a small number of selected carriers and PPSOs.

4.0 Document Shipment Status Reporting Requirements

The project team will draft changes to the Personal Property Traffic Management Regulation (PPTMR) and revise the Tender of Service (TOS) to incorporate the shipment inquiry and status reporting requirement.

5.0 Coordinate Proposed Changes

The project team will coordinate the proposed PPTMR and TOS changes with the Military Services and present them to the Personal Property Coordinating Council.

6.0 Coordinate Reporting Requirements with Industry

The project team will disseminate the proposed PPTMR and TOS changes to industry associations and carriers, soliciting their comments and views. It will also present the concept and supporting documents to industry representatives at a Military/Industry Personal Property Symposium, and amend the proposed PPTMR and TOS changes as agreed by both DoD and industry.

7.0 Publicize Proposed Changes

The project team will submit the proposed changes to the Commerce Business Daily for publication and edit the changes in accordance with the comments received.

8.0 Publish Changes

Following the completion of all testing and coordination, the project team will ensure that the PPTMR and the TOS changes are published.

Implementation Schedule

Figure C-13 shows the schedule for implementing personal property shipment status messages.

Major activity	Lead agent	Schedule					
		1995				1996	
		Jan	Apr	Jul	Oct	Jan	Apr
1.0 Define functional and reporting requirements	MTMC, Military Services						
2.0 Define technical requirements	MTMC, Military Services						
3.0 Integrate and test system	MTMC, TOPS project manager						
4.0 Document shipment status reporting requirements	MTMC						
5.0 Coordinate proposed changes	MTMC						
6.0 Coordinate reporting requirements with industry	MTMC, Military/Industry Personal Property Symposium						
7.0 Publicize proposed changes	MTMC						
8.0 Publish changes	MTMC, Military Services						

Project team leader — MTMC.

Figure C-13.
Personal Property Shipment Status Messages — Implementation